

VITAMIN VALUES OF FOODS

A COMPILATION

A summary of the vitamin A, thiamin, ascorbic acid, vitamin D,
and ribaflavin values of foods in terms of International Units
or absolute weights of these vitamins, as recorded in the
literature through December 1940

by LELA E. BOOHER¹, *formerly senior nutrition chemist,;*
EVA R. HORTZLER², *formerly assistant chemist;*
and ELIZABETH M. HEWSTON, *associate chemist,*
Bureau of Home Economics

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¹Now Director of the Institute of Nutrition, Milwaukee Children's Hospital,
Milwaukee, Wis.

²Now with Bio-Chemical Research Laboratories, Parke, Davis and Company,
Detroit, Mich.

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INTRODUCTION

This book summarizes the available data on the vitamin content of foods in relation to variety of plant or breed of animal, method of cultivation or feeding practice, place of production or source of material, method of cooking, processing, storage, variations in degree of maturity, and method of analysis, insofar as such information could be obtained from original published reports. Methods of analyses for several of the recognized vitamins have not as yet been established, although very promising methods are gradually being developed. For the present, potencies in the case of some of the vitamins cannot be expressed in terms of their absolute weights in foods nor have international standards been adopted for them. In view of these circumstances, it was decided to include in this compilation only the recorded values for the vitamin A, thiamin, ascorbic acid, vitamin D, and riboflavin contents of foods.

The tabulated vitamin values include only those values that were determined in terms of absolute weights of the vitamins or directly in terms of International Units. The vitamin A values of foods are derived from vitamin A per se and from vitamin-A-active carotenoids. In this tabulation, all vitamin A values have been expressed in terms of International Units and no distinctions have been made with regard to various vitamin-A-active compounds. When vitamin A values were reported in terms of milligrams of vitamin A, the data were converted into International Units on the basis that 1 International Unit was equivalent to 0.3 microgram of vitamin A. When values for the carotene content of foods were reported, these values were converted into International Units of vitamin A value on the basis that 1 International Unit of vitamin A value was equivalent to 0.6 microgram of beta carotene or to 1.2 micrograms of alpha carotene. Analyses of thiamin recorded in terms of International Units were converted into micrograms of thiamin by multiplying the former values by 3. Values for ascorbic acid recorded in terms of International Units (1 International Unit=0.05 mg. of ascorbic acid) were recalculated in terms of milligrams by dividing the International Unit values by 20 in accordance with the generally accepted procedure. Vitamin values recorded only in graphs were not included because of the inaccuracies inherent in ascertaining the precise values.

The following list of periodicals from the date of establishment of the latest international standards for vitamins through December 1940 were reviewed for data on the vitamin content of food.

American Journal of Physiology.	Journal of the American Dietetic Association.
American Journal of Public Health.	Journal of the American Medical Association.
The Analyst.	Journal of the Association of Official Agricultural Chemists.
Berichte der Deutschen Chemischen Gesellschaft.	Journal of Biological Chemistry.
Biochemical Journal.	Journal of Dairy Science.
Biochemische Zeitschrift.	Journal of Home Economics.
British Medical Journal.	Journal of Nutrition.
Cereal Chemistry.	Journal of Pediatrics.
Chemical Education.	Journal (Communications and Transactions) of the Society of Chemistry and Industry.
Die Ernährung.	The Lancet.
Experiment Station Bulletins.	Nature.
Food Research.	Poultry Science.
Helvetica Chimica Acta.	Proceedings of the American Society for Horticultural Science.
Hoppe-Seyler's Zeitschrift für Physiologische Chemie.	Proceedings of the Society for Experimental Biology and Medicine.
Indian Journal of Medical Research.	Science.
Industrial and Engineering Chemistry: Analytical Edition.	Zeitschrift für Vitaminforschung.
Industrial Edition.	
Journal of Agricultural Research.	
Journal of the American Chemical Society	

A few issues of these periodicals were not available to the authors because certain foreign periodicals for the year 1940 were not received. Data from a few issues of other periodicals were included as they came to the attention of one or another of the authors or as a result of search through chemical and nutrition abstracts. A few unpublished data were also included when made available to the authors through the courtesy of certain investigators or through analyses made in the nutrition laboratories of the Bureau of Home Economics. The sources of all unpublished data are given in the footnotes to the table of vitamin values.

EXPLANATION OF THE TABLE

CLASSIFICATION OF FOOD ITEMS

The first column of the table contains an alphabetized classification of the foods for which some one or more vitamin values were available. Subheadings, such as "dried" or "canned," are included under various foods, whenever there were sufficient data to warrant such a subclassification. The subclassification, various parts, refers, in most instances, to various parts of a single sample of a given food item. The authors are greatly indebted to several specialists on the staff of the Bureau of Plant Industry for certain classifications of plant foods, notably those for beans, cabbage, cereals, citrus fruits, lettuce, peppers, and tomatoes.

DESCRIPTION OF SAMPLES

In the second column of the table the authors have endeavored to summarize briefly the pertinent information important for identification of the samples analyzed by the investigators. This information was gathered from the original published reports.

When the variety of a fruit or vegetable was known, data on such

samples preceded (in the order of listing under any given food item) the data on the less well-defined samples. The specified varieties under each classification of the food items in column 1 are recorded alphabetically. In the case of animal foods the breed of animal was given preference in the order of listing the special attributes of samples, and under each item designations of breeds were alphabetized.

Insofar as possible the source of the sample analyzed by the investigator and the general method of analysis also have been recorded under the heading "Description of Samples." In a few cases, when the source of the samples analyzed was not specifically stated in the original published reports but the compilers have been reasonably certain of the source, they have indicated this fact by enclosing in brackets the word or words referring to the source. Because of space limitations, no attempt has been made to indicate minor variations in the methods of analysis and the reader is referred to the specific literature, cited in the last column of the table, for further information on this subject.

LISTINGS OF VITAMIN VALUES

Each of the main columns—headed Vitamin A value, Thiamin, Ascorbic acid, Vitamin D, and Riboflavin, respectively, is divided into two columns, designated as (a) and (b) preceded by the number corresponding to that of the main columns. Data in column (a) under each vitamin heading were arranged so that it would be possible by simple and rapid inspection to gain as clear an impression as possible of the variations in vitamin values of the edible portions of the classified items as listed in column 1. For example, the range of ascorbic acid values reported for apples, irrespective of variety and as purchased on the market or taken from the tree, is 0 to 23.4 milligrams per 100 grams of edible portion of apple. (See column 5a.)

Any figures printed in italics in the (a) columns under the five vitamin headings are not representative of values for food items as foods are generally produced or marketed. For the most part italicized figures represent data on underdeveloped or overdeveloped forms of plant food or on diseased samples. In scanning the data in the (a) columns with reference to some particular food item, then, the reader should exclude from his evaluation of vitamin values of foods as they are produced or marketed, all values recorded in italics. References to the corresponding description of sample will, in any given case, indicate why a figure has been italicized and therefore excluded from the category of foods as generally produced or marketed for human consumption.

From many published reports it was obvious that the food samples analyzed were not strictly fresh in the sense that they were analyzed immediately after production or harvesting, although the investigators did not mention any specific condition or time of storage. However, it was clear in the case of all data recorded in the column (a) under each vitamin heading that the investigators considered the samples as edible or marketable products, unless the description indicates otherwise.

In the case of potatoes the ascorbic acid values were, in general, observed to undergo marked changes on storage. In view of the fact that so many investigators neglected to mention whether or not storage was involved, data on both freshly harvested and stored samples of potatoes were included in column (a).

The figures in the respective (b) columns under the five vitamin headings represent values which in some manner reflect a condition not inherent in foods as they are designated in column 1. The variant in each instance is specified in the description of sample given in column 2. The values shown in these columns in boldface type represent matched sampling with those in boldface type immediately preceding in the (a) column. For example, the ascorbic acid value of fresh amaranth leaves, shown in the table in boldface type in the (a) column under the heading of ascorbic acid is 112.1 milligrams per 100 grams of fresh sample. After storage for 24 hours the ascorbic acid value of samples of the same lot of leaves was 59.9 milligrams per 100 grams of leaves. After storage for 4 days the ascorbic acid value of the leaves was further reduced to 5.5 milligrams per 100 grams of leaves.

Boldface type has also been used to denote matched samples when values are recorded consecutively in the (a) or (b) columns under one general description reported by one investigator. This situation appears for the first time in the table in connection with data recorded on the thiamin values for white wheat bread. In this case the crust, the portion directly under the crust, the center portion, and the whole slices of toasted bread represent carefully matched samples. The thiamin values of 100, 120, 120, and 110 micrograms, respectively, per 100 grams of dried product indicate both absolute and relative values for different portions of the toasted slices as compared with the toasted whole slice.

When any investigator's data have been listed to show what happens to the vitamin values of the fresh sample after some subsequent processing, such as dehydrating or canning, the data for the processed product have not been repeated under any subclassification denoting processing. For example, under the item, apple, data on Northern Spy apples grown in New York include data on the ascorbic acid value of the fresh sample as well as matched samples made into applesauce. The ascorbic acid value for applesauce made from Northern Spy apples is not repeated under the separate classification of applesauce.

In setting up the material under description of sample the authors of this bulletin have endeavored to present the work of each investigator as closely in accord as possible with the purpose and objective of the investigator. Data from the same report might deal with such diverse objectives as showing how degrees of maturity affected the vitamin value of apples and how dehydration of apples affected their vitamin value. Even though the samples used for these two studies might have been of the same variety and from the same source and analyzed by the same method, it was hardly likely that the samples could have been matched. In such cases the authors of this bulletin have endeavored to be very careful not to give the impression that the samples used in the two studies were necessarily related or matched. Appropriate spacing or repetition of the more general aspects of sample identification was frequently used to achieve this end.

COLUMN OF REFERENCES

The last column (column 8) in the table carries the reference numbers to the literature citations, alphabetized by authors, corresponding to the data given in the table.

Almond	Unbleached, new; Washington, D. C., market sample; rat-growth method.	0	246							(*)
	Unbleached; rat-growth method.									29
Amaranth	Leaves; India; dye titration.									211
	Leaves; India; dye titration.									212
	Fresh 24-hour storage at room temperature.									212
	After 4-day storage at room temperature.									88
	Leaves; Java; rat-growth method.									185
	India; fluorometric method.	{ 1,587 4,800 }								156
Apple	Rockport, Germany; dye titration:									
	Stored 2 months at 6° C.									
	Stored 4 months at 6° C.									
	Stored 2 months at 4° C.									
	Stored 4 months at 4° C.									
	Stored 2 months in barn.									
	Stored 4 months in barn.									
	Rockport, Germany; dye titration:									
	Stored 2 months at room temperature.									
	Parad, trees fertilized with potassium and phosphorus.									
	Parad, trees fertilized with 90 kg. nitrogen per hectare.									
	Parad, trees fertilized with 120 kg. nitrogen per hectare.									
	Parad, trees fertilized with 180 kg. nitrogen per hectare.									
	Delicious; Washington: rat-growth method.	ca 102								
	Delicious; near Washington, D. C., rat-growth method.									
	James Grieve; England; thiochrome method.		24							
	James Grieve; England; thiochrome method.									
	King Pippin; dessert; England; thiochrome method.		45							
	McIntosh; small; dye titration.									
	Mutsaers; small; thiochrome method.									
	Northern Spy; New York; dye titration.		57							
	Unpared.									
	Unpared and quartered.									
	1 hour after quartering.		11							
	3 hours after quartering.		11							
	1 hour after peeling and quartering.		10							
	1 hour after peeling and quartering.									

International Unit values were calculated from carotene analyses or included carotene analyses.

* Values on cooked- or processed-weight basis.

* Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	Reference
(1)	(2)	(3a)	(4a)	(5a)	(6a)	(7a)	(8)
Apparagus— Canned.	Martha Washington, New Jersey; rat-growth method.						
	Blanching, processed 20 minutes at 115.5° C. in No. 2 cans.						
	Lyons, California; boys' cap.						
Freen.	Commercial samples; average and range, 3 samples; U. S. A.; dye titration:						
	Canned in tin.						
	Cooked or canned, average and range, England; dye titration.						
Freen.	Martha Washington; blanched; U. S. A.; rat-growth method.						
	England; commercially frozen; spectrographic method.						
	Commercial sample, cut Apr. 28-May 16; U. S. A.; dye titration.						
Various parts.	Overmature, cut, May 26-June 3; U. S. A.; dye titration.						
	Commercial sample; U. S. A.; fluorometric method.						
	Various parts; dye titration:						
	White stem						
	Type, short, faint purple						
	White stem						
	Young; England; dye titration:						
	Young; England; dye titration: purple, no green						
	White stem						
	Young, shoot showing green tips; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						
	Young, shoot, cutting, slender shoot; England; dye titration:						
	Type:						
	Green stem						
	White stem						

[illegible]

Experimental T1 ρ values were calculated from carotene analyses or included carotene analyses.

22 Values on cooked- or processed-weight basis.

⁴ Values on raw-weight basis.

Item	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Banana—Con.	Gros Michel; ripe; Columba; dye titration: Shed; average and range, 5 samples; 20 minutes after slicing; average, 4 samples; 2 hours after slicing; average, 4 samples; 20 minutes after slicing; average, 4 samples; 2 hours 40 minutes after slicing; average, 4 samples; 10 hours 40 minutes after slicing; average, 4 samples; 2 samples; 20 minutes after slicing; average, 4 samples; 20 samples	<i>t. U.</i>	<i>t. U.</i>	<i>Mcq.</i>	<i>Mcq.</i>	<i>Mcq.</i>	<i>Mcq.</i>	<i>t. U.</i>	<i>t. U.</i>	<i>Mcq.</i>	114
	Gros Michel; Costa Rica; dye titration: Feed green, pulp hard; average and range, 10 samples; Feed yellow and green; average and range, 16 samples; Feed all yellow with green tip; average and range, 20 samples; Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 11.5 \\ 8.4-14.9 \end{array} \right.$	$\left\{ \begin{array}{l} 10.2 \\ 8.9 \end{array} \right.$				
	Feed green, pulp hard; average and range, 10 samples; Feed yellow and green; average and range, 16 samples; Feed all yellow with green tip; average and range, 20 samples; Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 4.9-5.2 \\ 5.2-11.4 \end{array} \right.$	$\left\{ \begin{array}{l} 8.9 \\ 5.8-11.4 \end{array} \right.$				
	Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 5.8-18.0 \\ 9.1 \end{array} \right.$	$\left\{ \begin{array}{l} 5.8-18.0 \\ 9.1 \end{array} \right.$				
	Feed yellow, flecked with brown; average and range, 18 samples. Feed black, pulp overripe; average and range, 20 samples; Feed yellow with green tip; Costa Rica; dye titration: Ripe; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 5.0-13.2 \\ 8.9-14.5 \end{array} \right.$	$\left\{ \begin{array}{l} 5.0-13.2 \\ 8.9-14.5 \end{array} \right.$				
	Gros Michel; peel yellow, flecked with green tip; Costa Rica; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 1.0-3.4 \\ 9.3 \end{array} \right.$	$\left\{ \begin{array}{l} 1.0-3.4 \\ 9.3 \end{array} \right.$				
	Gros Michel; peel yellow, flecked with brown, Costa Rica; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 16.7 \\ 1.6-9 \end{array} \right.$	$\left\{ \begin{array}{l} 16.7 \\ 1.6-9 \end{array} \right.$				
	Feed green, pulp hard; average and range, 10 samples; Feed yellow and green; average and range, 16 samples; Feed all yellow with green tip; average and range, 20 samples; Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 4.9-5.2 \\ 5.2-11.4 \end{array} \right.$	$\left\{ \begin{array}{l} 8.9 \\ 5.8-11.4 \end{array} \right.$				
	Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 5.8-18.0 \\ 9.1 \end{array} \right.$	$\left\{ \begin{array}{l} 5.8-18.0 \\ 9.1 \end{array} \right.$				
	Feed yellow, flecked with brown; average and range, 18 samples. Feed black, pulp overripe; average and range, 20 samples; Feed yellow with green tip; Costa Rica; dye titration: Ripe; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 5.0-13.2 \\ 8.9-14.5 \end{array} \right.$	$\left\{ \begin{array}{l} 5.0-13.2 \\ 8.9-14.5 \end{array} \right.$				
Banana—Con.	Gros Michel; peel yellow, flecked with brown, Costa Rica; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 16.7 \\ 1.6-9 \end{array} \right.$	$\left\{ \begin{array}{l} 16.7 \\ 1.6-9 \end{array} \right.$				114
	Feed green, pulp hard; average and range, 10 samples; Feed yellow and green; average and range, 16 samples; Feed all yellow with green tip; average and range, 20 samples; Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 4.9-5.2 \\ 5.2-11.4 \end{array} \right.$	$\left\{ \begin{array}{l} 8.9 \\ 5.8-11.4 \end{array} \right.$				
	Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 5.8-18.0 \\ 9.1 \end{array} \right.$	$\left\{ \begin{array}{l} 5.8-18.0 \\ 9.1 \end{array} \right.$				
	Feed yellow, flecked with brown; average and range, 18 samples. Feed black, pulp overripe; average and range, 20 samples; Feed yellow with green tip; Costa Rica; dye titration: Ripe; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 5.0-13.2 \\ 8.9-14.5 \end{array} \right.$	$\left\{ \begin{array}{l} 5.0-13.2 \\ 8.9-14.5 \end{array} \right.$				
Banana—Con.	Gros Michel; peel yellow, flecked with brown, Costa Rica; dye titration: Baked in skins Baked without skins Steamed Stuffed					$\left\{ \begin{array}{l} 16.7 \\ 1.6-9 \end{array} \right.$	$\left\{ \begin{array}{l} 16.7 \\ 1.6-9 \end{array} \right.$				244
	Feed green, pulp hard; average and range, 10 samples; Feed yellow and green; average and range, 16 samples; Feed all yellow with green tip; average and range, 20 samples; Feed all yellow; average and range, 20 samples					$\left\{ \begin{array}{l} 4.9-5.2 \\ 5.2-11.4 \end{array} \right.$	$\left\{ \begin{array}{l} 8.9 \\ 5.8-11.4 \end{array} \right.$				

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods--Continued

[illegible]

[illegible]

Values on cooked or processed weight basis.

4 Values on range-weight basis.

Values on raw-weight basis.
This figure may be elevated.

This figure may be significantly affected by method of sampling because of oxidative enzymes.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a)	Folic acids (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Bean—Continued. Kidney—Continued. Green snap pods— Continued.	Refugee; New York; dye titration: Fresh Stored 1 day at 21°-25° C. Stored 6 days at 21°-25° C.	I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	
	Refugee; New York; dye titration: Fresh Stored 1 day at 1°-3° C. Stored 6 days at 21°-25° C.					17	7.1				170
	Refugee; New York; dye titration: Fresh Stored 17 minutes (dome) Cooked, liquid discarded Liquid from canned sample					17	16.5				170
	Refugee; New York; dye titration: Fresh Immature Overmature					22	14.4				170
	Tendergreen, grown on Ontario clay loam; New York; dye titration: Tendergreen, grown on Ontario clay loam; New York; dye titration: Immature					19	8.3				170
	Tendergreen, grown on Ontario clay loam; New York; dye titration: Immature					24	8.3				170
	Tendergreen, garden fresh; Ohio; dye titration: U. S. No. 3; grown on Ontario clay loam; New York; dye titration: U. S. No. 5; New York; dye titration: Grown on day loam					24	45.3				170
	White Pea; grown on buck soil; Ontario clay loam; New York; dye titration: Very average; Boston wholesale market; dye titration: Fresh					13	13				170
	Stored 24 hours at 21°-25° C. Green; Boston market at 21°-25° C. Fresh stringless; England; dye titration: Cooked, liquid discarded 2-5 days after commercial canning, liquid discarded Liquid from canned sample					22	22				170
						17.6	19				82
						9.0	11.8				82
							14.1				200
							2.5				5.5

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (3)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Beef—Continued. Kidney—Con. Wax—Con.	Kidney Wax; New York; dye titration: Fresh.....	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	Meg.	170
	Stored 1 day at 21°-23° C.....					19	7.2					
	Stored 6 days at 21°-23° C.....					19	3.1					
	Stored 1 day at 1°-3° C.....						11.9					170
	Stored 6 days at 1°-3° C.....						6.3					
	Kidney Wax; New York; dye titration: Immature.....					21						
	Mature.....					18						126
	Yellow wax; New York; fluorimetric method.....					26				101		
	Yellow wax; 2 determinations on same sample; U. S. A.; dye titration method.....	1,520										
	Yellow wax; 2 determinations on same sample; U. S. A.; dye titration method.....	1,460		87		23.6						29
Lime: Immature.....	Yellow wax; market sample; U. S. A.; dye titra- tion.....											28
	Purple (bush); New York; dye titration: ½-1½ inch diameter.....					40						263
	Stored 3 days at 0° C.....					40						
	Stored 11 days at 0° C.....					40						
	Purple (bush); New York; dye titration: ¾-1½ inch diameter.....					40						263
	Stored 3 days at 0° C.....					40						
	Stored 11 days at 0° C.....					40						
	Purple (bush); New York; dye titration: ¾-1½ inch diameter.....					20						263
	Stored 3 days at 0° C.....					35						
	Stored 11 days at 0° C.....					35						
Unshelled: Stored 4 days at 0° C.....	Purple (bush); ¾-1½ inch diameter; New York; dye titration: Shelled.....											263
	Stored 2 days at 0° C.....					49						
	Stored 11 days at 0° C.....					32						
	Unshelled: Stored 2 days at 0° C.....					39						263
	Stored 4 days at 0° C.....					40						
	Stored 11 days at 0° C.....					32						
	Unshelled: Stored 2 days at 0° C.....					35						263
	Stored 4 days at 0° C.....					35						
	Stored 11 days at 0° C.....					27						
	Unshelled: Stored 2 days at 0° C.....					35						263
	Stored 4 days at 0° C.....					35						
	Stored 11 days at 0° C.....					27						

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

	Stored 7 days at 22° C. 1/4-3/4 inch diameter.	Stored 10 days at 16° C. Stored 7 days at 23° C.	29	20
Willow leaved (pole); New York; dye titration:				
1/4-3/4 inch diameter			43	
1/4-3/4 inch diameter			39	
1/4-3/4 inch diameter			41	
1/4-3/4 inch diameter			39	
1/4-3/4 inch diameter			34	
Green; Boston market; spectrographic method				
Market sample; U. S. A.; rat-growth method			342	
U. S. A.; dye titration:				
Raw; dye titration:				
Cooked, liquid discarded				
Cooked, liquid retained				
English; dye titration:			28.7	117.2
Fresh, mixed sample				124.5
Large, mixed sample			22.2	
Large, mixed sample			22.2	
Fresh; average; 1 beam; England; dye titration			16.7	
[England]; thiochrome method			16.6	
[England]; rat-growth method:			24	
Boiled				
2 samples, liquid discarded; England; dye titration:				
Immediately after commercial canning.				
After 35-week storage at room temperature.				
"Baked beans"; [England]; thiochrome method				
Small California pea beans; "oven-baked", commercial sample of percent moisture; U. S. A.,				
muscle with percent moisture				
"Oven-baked" beans with pork, commercial sample 66.3 percent moisture; U. S. A.; rat-				
New McCaslin; overmature, commercially canned in No. 5-6 can; New York; dye titration:				
Peas and pork				
Seeds only				
Green snap pods:				
			18	
			3	
			44	
				170

¹ International Unit values were calculated from carotene analyses or included carotene analyses.^a Values on cooked- or processed-weight basis.

* Values on raw-weight basis.
 * Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Wax.	Canned in 1933.....				4.5		106
	Canned in 1934.....				3.0		
	Average of commercial samples; strained; U. S. A.; dye titration:.....				1.8		
Lima.	In tin containers.....				4.6		190
	In tin containers; average and range, 5 samples.....				2.4		
	Commercial samples; U. S. A.; dye titration:.....				1.2-1.1		100
Lima.	In glass containers; average and range, 4 samples.....				2.4		
	Henderson Bush; bleached and canned; New Jersey; rat-growth method.....	36			4.3		
	Cultured; average and range, 4 samples; U. S. A.; dye titration:.....				2.9		
Mussel.	In tin containers.....				4.8		190
	In glass containers.....				1.2-1.6		
	Buwal; India; fluorometric method.....				2.6		
Mussel.	Buwal; India; dye titration.....				14.2		Trace
	Brown; India; fluorometric method.....						90
	Brown; India; dye titration:.....						
Kidney.	Dry seeds.....				2.5		1
	Sprouted.....				7.8		
	White; India; dye titration:.....				8.0		1
Kidney.	Sprouted.....				7.3		1
	Blue pod; Michigan; rat-growth method; grown on light-medium sandy barn.....	870					142
	Grown on heavy sandy barn.....	810					
Kidney.	Small; California pea beans; U. S. A.; rat-growth method.....						
	New.....	610					
	Home baked 8 hours at 300° F.....	730					(*)
Kidney.	Cranberry; Michigan; rat-growth method; grown on light-medium sandy barn.....	330					142
	Grown on heavy sandy barn.....	330					
	Great Northern; Michigan; rat-growth method; grown on light-to-medium sandy barn.....	610					142
Kidney.	Grown on heavy sandy barn.....	480					142
	Michigan; rat-growth method.....	600					142
	Michigan; Michigan; rat-growth method.....	0					29

^a Values on cooked- or processed-weight basis.
^b Values per 100 ml.
^c Values on raw-weight basis.
^d Unpublished data, Bureau of Home Economics.

Linn. Linnaure	Wax.....					6-7				82
	Linnaure.....					4-7				82
	Linnaure.....									297
	Linnaure.....									297
	Linnaure.....									82
	Linnaure.....									82
	Linnaure.....									72
	Linnaure.....									82
	Linnaure.....									82
	Linnaure.....									13
Beef	Beef.....									28
	Beef.....									28
	Beef.....									28
	Beef.....									13
	Beef.....									28
	Beef.....									28
	Beef.....									13
	Beef.....									28
	Beef.....									28
	Beef.....									13
Various organs (see Beef, Kidney, Liver, etc.)	Various organs (see Beef, Kidney, Liver, etc.).....									13
	Various organs (see Beef, Kidney, Liver, etc.).....									28
	Various organs (see Beef, Kidney, Liver, etc.).....									28
	Various organs (see Beef, Kidney, Liver, etc.).....									13
	Various organs (see Beef, Kidney, Liver, etc.).....									28
	Various organs (see Beef, Kidney, Liver, etc.).....									28
	Various organs (see Beef, Kidney, Liver, etc.).....									13
	Various organs (see Beef, Kidney, Liver, etc.).....									28
	Various organs (see Beef, Kidney, Liver, etc.).....									28
	Various organs (see Beef, Kidney, Liver, etc.).....									13
Beer	Beer.....									13
	Beer.....									28
	Beer.....									28
	Beer.....									13
	Beer.....									28
	Beer.....									28
	Beer.....									13
	Beer.....									28
	Beer.....									28
	Beer.....									13

1 International Unit values were calculated from enzyme analyses on heated, frozen samples.
 2 Values on cooked, or processed-weight basis.
 3 Values per 100 ml.
 4 Values on raw-weight basis.
 5 Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A values		Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)		Vitamin D	Riboflavin	References
(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(7a)	(8)
Bread—Continued. Wheat—Con. Miscellaneous—Continued.	"Germ bread," mixture of 26 parts prepared wheat germ, 75 parts white flour, England; bread yeast, cardis method.	I. U.	I. U.	Mcg.	Mcg.	Mfg.	I. U.	Mfg.	112
	White flour, 75 parts white flour, England; bread yeast, cardis method.			240-270					15
	do do			81					16
	Austrian bread; England; bread yeast method.			160-200					17
	do do			150-270					13
	White flour with 2 percent of high-vitamin-B ₁ yeast, cardis method.			364					234
	do do			398					234
	Made with high-vitamin-B ₁ yeast; New York; cardis method.			1,120					
	Before toasting			1,180					
	Lightly toasted			1,078					
	Medium toasted			1,078					
	Heavily toasted			1,078					
	Before toasting			440					
	Lightly toasted			440					
	Medium toasted			478					
	Heavily toasted			478					
	Before toasting			1,000					
	Made into melba toast.			1,120					
	Made with commercially "enriched" flour, bakery yeast, cardis method; Washington, D. C.; rat-growth method.			240	278				128
	Fresh whole slices, average for 6 loaves.								
	Dried whole slices, average for 6 loaves, 33.6 percent moisture.			278	290				
	Fresh crust, 1/4-inch thick, composited from 14 loaves, 23.6 percent moisture.								
	Dried crust, 1/4-inch thick, composited from 14 loaves.			240	400				
	Fresh, inner portion of slices, 1/4-inch crust removed, 38.4 percent moisture.								
	Dried, inner portion of slices, 1/4-inch crust removed.								
	Black; Rumania; dye titrated					1.25			204
	Black; Rumania; dye titrated								45
	Black; Rumania; powder bread; England; rat-growth method.			0					

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Brussels sprouts	Buds.....					82
	Siems.....					
	Range, 3 batches; England; dye titration:					
	Fresh, liquid discarded:					
	6 days after canning.....					
	Liquid from cooked samples.....					
	Liquid from canned samples.....					
	Average of ranges, 10 batches; fresh; England;					
	dye titration.....					
	England; brydycardia method.....					
	Germany; dye titration:					
	Cooked in water, liquid included.....					
	Cooked in water, liquid discarded.....					
	Stocks.....					
	Indole dye titration.....					
	Market sample; U. S. A.; dye titration:					
	Autumn season.....					
	U. S. A.; nit-growth method.....					
	Cooked; average and range; England; dye titra-					
	tion.....					
	Connecticut canned, liquid discarded; England;					
	U. S. A.; dye titration.....					
	Lacquered cans:					
	6 days after canning.....					
	At 17-week storage at room tempera-					
	ture.....					
	Unlabeled cans:					
	After 17-week storage at room tempera-					
	ture.....					
	Commercial sample; Boston market; spectro-					
	method.....					
	Commercial sample, frozen, cooked; rat-growth					
	method.....					
	Fresh; England; dye titration:					
	Outer leaves of sprout.....					
	Inner leaves, same sprout.....					
	Heart of same sprout.....					
	Stem of same sprout.....					
	Washington, D. C. market; rat-growth method.....					
	Flour.....					
	International unit values were calculated from carotene analyses of included carotene analyses.					
	Values on cooked basis.....					
	Values on fresh basis.....					
	Unpublished data, Bureau of Home Economics.					

Buckwheat:

Flour.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

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Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Fleur.....

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (vitamin D ₂) (6a) (6b)		Riboflavin (7a) (7b)	Rade- coda (8)
Butter, cow's—Con.	Creamery samples; Scotland; rat-growth and rat- curative methods, respectively: Cows milked; February–April 1936.....	I. U. 1,320 1,300 2,300 2,500	I. U. 1,320 1,300 2,300 2,500	Meg. Meg.	Meg.	I. U. 8-21 40-90	I. U.	Meg. Meg.	191
	Cows on pasture; May–September 1936.....	2,720	2,720						
	Cows on grass; Scotland; rat-growth and rat- curative methods, respectively: Cows milked; November–February 1937; Scotland; rat-growth method; Summer.....	1,350 1,350 2,300 2,800	1,350 1,350 2,300 2,800	Meg. Meg.					280
	Creamery; cows milked; November–April, on grass; May–October; Scotland; rat-growth and rat-curative methods, respectively: February–April 1936.....	1,320 1,350 2,300 2,800 2,410 2,850	1,320 1,350 2,300 2,800 2,410 2,850			8-22 20-99 8-30 30			289
	May–October 1936.....	1,020	1,020			(not more than 21)			289
	May 1937.....								
	London market; Scotland; rat-growth and rat- curative methods, respectively: April 1936.....	2,000 1,240	2,000 1,240						
	Creamery; Washington, D. C.; rat-growth method; Summer produced.....	5,900 3,600 3,600	5,900 3,600 3,600						29
	Washington retail market; purchased in winter season; rat-growth method; U. S. A.; dye titration.....				0				29
	U. S. A.; rat-growth method.....			3	0				68 43 205
Butterfat, cow's—	From Arabian cows on mixed ration; Wisconsin; spectrophotometric method; 1 day after parturition.....	1,27,130	1,27,130						233
	7 days after parturition.....	4,220	4,220						
	30 days after parturition.....	12,850	12,850						
	6-100 days after parturition.....	13,870	13,870						
	More than 100 days after parturition.....	12,760	12,760						

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

[illegible]

! International Unit values were calculated from carotene analyses or included carotene analyses. ! Values on cooked- or processed-weight basis. ! Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Cabbage—Con.	White; Germany; dye titration: Raw, liquid included Cooked in water, liquid included Steamed, water 1-2 hours, liquid included Cooked in water 1-2 hours, liquid discarded White; Germany; dye titration: Raw, liquid included Cooked, liquid discarded Dye	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	Meg.	151
	Do.					40.3	11.4					59
	White; Germany; dye titration.					24.5	82.5					279
	Green; Germany; dye titration.					24.5						279
	Green and fresh; India; fluorometric method					42.7				215		279
	Green; India; dye titration					51.2						176
	India; fluorometric method									32		231
	Leaves; India; dye titration											231
	Green; India; dye titration					40.6						1
	Green; Ohio; dye titration											
	Average and range, 30 varieties and strains					100.2						
	Range, 7 strains; July					48.8-180.9						33
	Range, 7 strains; November					54.2-180.4						
	Range, 3 varieties; 1938					60.7-180.9						
	Shredded; Ohio; dye titration:					36.5-102.1						
	Raw, liquid included					111.6	33.5					34
	Cooked, liquid retained						49.7					
	Green; Rumania; dye titration:											
	Raw, liquid included					32-33.3	37.0-49.7					204
	Cooked									50		67
	White; Sweden; fluorometric method											85
	Small-headed; average and range, 5 samples; Texas;					130-139						205
	Raw samples of freshly cut cabbage from various					31-44						
	kraut factories; 1935; U. S. A.; dye titration.											121
	2 samples; U. S. A.; fluorometric method.									66		
	U. S. A.; rat-growth method									44		28
				81								

[illegible]

Values on cooked- or processed-weight basis.

* Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Riboflavin (vitamin B ₂)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		I. U. (3a)	I. U. (3b)	Meg. (4a)	Meg. (4b)	Mg. (5a)	Mg. (5b)	I. U. (6a)	I. U. (6b)	Meg. (7a)	Meg. (7b)	
Cabbage—Con. Frozen..... Juice..... Various parts.....	Commercial sample; Boston market; spectro- graphic method.....	1,300				142.7						82
	Fresh; U. S. A.; dye titration.....											102
	France; thiodrome and luminiflavin methods, re- sults.....									40-50		83
	Inner leaves.....									40-50		
	Outer leaves.....											32
	Whole head; modified dye titration.....											
	Germany; dye titration.....					76						279
	Green outer leaves.....					55						
	Garden fresh; India; dye titration.....					82.5						211
	Outer leaves.....					132.6						
Cacao shell.	By-product of chocolate manufacture; rat-cura- tive method.....					135.8		3,500				149
	Rat-curative method.....							30,700				233
Cacao shell fat. Carp.....	Fresh; Germany; chromatographic and colori- metric method.....									35, 2-87.5		79
	Chantenay; grown on Airsport and sandy loam; New York; dye titration.....											
Carrot.	Fresh.....					2.5	13.5					84
	Boiled 20 minutes.....						5.9					
do.....						2.1					215
	Fresh.....					4.1	13.5					
	Boiled 15 minutes.....						3.9					82
do.....						1.7					
	Cooking liquid from above sample.....					11.1						82
	Tenderwest; garden fresh; Ohio; dye titration.....											
	Average and range; Argentina; dye titration.....					{ 5 }						82
	Boston market; spectrographic method.....					{ 3-7 }						

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (3)
		I. U. (3a)	I. U. (3b)	Mcg. (4a)	Mcg. (4b)	Mg. (5a)	Mg. (5b)	I. U. (6a)	I. U. (6b)	Mcg. (7a)	Mcg. (7b)	
Carrot—Continued. Canned.....	Europe; spectrographic method.....											
	Commercial samples; U. S. A.; dye titration: Canned in tin, average and range, 6 samples.....	139,310 113,780										190 200
	Canned in glass; average and range, 5 samples.....					0.8-2 0.9-1.6 0.9-4.3 3.4						190
	Strained, canned in tin.....											
Dried.....	Commercial samples; spectrographic method: Strained and canned in glass; average and range, 5 samples.....											
	Strained and canned in 1932.....	6,270										
	Strained and canned in 1933.....	6,500										
	Strained and canned in 1934.....											
Frozen.....	Germany; dye titration.....			31.5								109
	Commercial sample; Boston market; spectro- graphic method.....	13,500				10.9 7.6						99 99 99 82
	Fresh; U. S. A.; dye titration: Europe; spectrographic method: Entire roots.....					34.0						102
	Outer orange part of root.....	118,000										200
Cashew nut.....	Commercial sample; spectrographic method: Entire part of root.....	130,200										
	Flesh.....	16,190										225
	Skin.....					31 75						145
	India; fluorometric method.....									190		
Cauliflower.....	Danmark; New York; dye titration: July.....											290
	September.....					95						
	Freshly harvested.....					82						
	Held 2 weeks at 1°-3° C. after harvesting.....						98					
Carrot—Continued. Canned.....	Early Snowball; New York; dye titration: July.....											290
	September.....					89						
	Freshly harvested.....					101						
	Held 2 weeks at 1°-3° C. after harvesting.....					103						
Cauliflower.....	Forced; New York; dye titration: July.....											290
	September.....					97						
	Freshly harvested.....					96						
	Held 2 weeks at 1°-3° C. after harvesting.....						100					

[illegible]¹ International Unit values were calculated from carotene analyses or included carotene analyses.

• Values per 100 ml.
• Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.		Mg.	Mg.	I. U.	I. U.		
Cauliflower—Con.	Rumania; dye titration: Raw.....				41.0	19.5			Mcp.	204
	Cooked; dye titration: U. S. A. ret-growth method.....				40	31.7				21
	Fresh.....									28
	Stored for 10 days at room temperature. U. S. A. ret-growth method.....			168						202
Frozon.....	Cokelet or smelt; average and range, England. Commercial sample; Boston market; spectro- graphic method.....					125 116-12				82
	Flounder; New York; dye titration: Danamarka.....	200								
	Early Snowball.....				100					
	White Mountain.....				106					290
Various parts.....	Stems; July; New York; dye titration: Danamarka.....				104					
	Roots; New York; dye titration: Danamarka.....				90					280
	Leaves; New York; dye titration: Danamarka.....				86					
	Flowers; New York; dye titration: Danamarka.....				95					
Cavlar	White Mountain.....				82					
	Average; Florida; July; dye titration: Danamarka.....				103					280
	Stems.....				80					
	Argentina; dye titration: Flowers; average and range.....				35 72-85 245 233-260					216
Celery	Leaves; average and range.....									209
	Thiodrome method.....			NH						
	Green Utah; range for stalks; market sample; New York; dye titration: Fresh.....				5.87-7.88					203
	Cooking liquid from above sample; Sal. Utah; range for stalks; market sample; Salt; dye titration: Fresh.....				12.10 1.74-3.89					34
Colery	Cooking liquid from above sample; Sal. Utah; range for stalks; market sample; Salt; dye titration: Fresh.....				10.4					216
	Average and range; Argentina; dye titration: England; thiodrome method.....				10 7-14					209
	England; thiodrome method.....									11
	England; bristyardia method.....			45 Trace						

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

do	2,320				115
Curd cheese; Rumania; dye titration.					116
Danish blue; rat-growth method.	2,500			1.28	116
Dutch; rat-growth method.	2,460				116
Dutch; thiochrome method.			18		269
Eggs; Nebraska; rat-growth method.	1,100				116
Eggs; Nebraska; thiochrome method.	2,470				116
Gergens; thiochrome method.			12		300
Grayes; thiochrome method.			6		116
Liederkranz; rat-growth method.	3,440				116
Liederkranz; thiochrome method.	1,400				116
Limbarger; U. S. A.; rat-growth method.	{ 1,135 }				116
Neufchâtel; rat-growth method.	{ 2,190 }				116
Parmesan; thiochrome method.					299
Pimento; U. S. A.; rat-growth method.	2,360				116
Pimento cream; rat-growth method.	{ 1,630 }				116
Requesfort; rat-growth method.	{ 4,010 }				269
Requesfort; thiochrome method.			30	1.70	304
Silber; Rumania; dye titration.					29
Silber; thiochrome method.			24		29
Swiss; Washington, D. C.; market sample; rat-growth method.	2,680				116
Swiss; Washington, D. C.; market sample; thiochrome method.	1,970				116
Cheddar; rat-growth method.	1,650				116
do					29
do					34
do					229
do					229
do					59
Average and range; Argentina; dye titration.				2.7	216
Germany; dye titration.				{ 15-38 }	
do				3.7	59
do				3.7	39
Commercial sample; England; pasteurized.				Trace	11
[England]; bndyardia method.			270		
Breadst from Single Cornb White Lephorn; average and range; New York; fluorometric method.					40
Diet contained 1 mcg. riboflavin per gm.					40-60
Diet contained 6.6 mcg. riboflavin per gm.					81
					70
					125

Values on cooked- or processed-weight basis.
Values on raw-weight basis.

Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ence values (8)
		I. U.	I. U.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Chicken—Con.										
	Leg from Single Comb White Leghorn; average and range; New York; fluorometric method; Diet contained 1 meg. riboflavin per gm. of ration. Diet contained 6.5 meg. riboflavin per gm. of ration.									
	Hen, 10 weeks; Germany; chromatographic and colorimetric method.									125
	Dark meat; (U. S. A.); rag-growth method.			111						233
	Light meat; (U. S. A.); rag-growth method.			78						233
	Dark meat; (U. S. A.); rag-growth method.									233
	Market; rag-growth method.									233
	Muscle, chicks raised to 3 months on ascorbic acid; rag-growth method.				0					133
	Muscle, U. S. A.; dye titration.				4					22
	Leg, roasted.			1.01						209
	Thiochrome method.			1.20						
	Bradford-Gardia method.									
Various organs (see Heart, Liver, etc.).										
Chickweed.	Ohio; dye titration.				37.7					35
Chico.	India; dye titration.				2.5					1
Chicory.	Roots, England; thiochrome method.			75						210
	Roots, Honduras and Guatemala methods, respectively.			20-50						83
Chili.	Paraná variety; ripe; India; dye titration.				171.7					
	Cooked.									
	Raw.									
	Paraná variety; unripe; India; dye titration.				218.0					
	Cooked.									
	Raw.									
	"Capsicum"; average and range; Argentina; dye titration.				89.5					25
	Green.				132.8					25
	Red.				285					
					178-365					
					338					
					303-356					216

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample (1)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a)	References (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
		I. U.	I. U.	<i>Mcg.</i>	<i>Mcg.</i>	<i>Mg.</i>	<i>Mg.</i>	I. U.	I. U.	<i>Mcg.</i>	
Citrus fruit— Con. Seedless—Con.	Marsh Seedless; sour orange rootstock, Florida; dye titration.					31.3					17
	Marsh Seedless; average and range, 4 samples; Texas; dye titration.					23.0-41.7					85
	Marsh Seedless; Texas; dye titration:										
	February					120					181
	Florida					134					
	Marsh Seedless; average regardless of location or season; Texas; dye titration.					136					181
	Marsh Seedless; Texas; dye titration.					132					181
	Red Blush; Texas; dye titration.					32.6					181
	Red Blush; Texas; dye titration:					33.0-40.7					181
	April					24.0					181
Scedy	Red Blush; average regardless of location and season; Texas; dye titration.					32.7					181
	Thompson or Pink Marsh; average and range, 4 samples; Texas; dye titration.					32.0					85
	Marsh Seedless; average and range, 4 samples; Texas; dye titration.					32.3-35					52
	Bowen; average and range, 8 samples; Florida; dye titration.					33-40					17
	Common Grapefruit; rough-lemon rootstock; Florida; dye titration.					39.4-37.4					17
	Common Grapefruit; Florida; dye titration.					32-35					17
	Ida; dye titration; Florida; dye titration.					33-34					17
	Common's Prolifer; Texas; dye titration.					35-42					85
	Davis; average and range, 6; Florida; dye titration					34.0-38.9					52
	Davis; average, 3 fruits; Florida; dye titration.					33-34					52
	Duncan; Texas; dye titration					188					85
	Duncan; average regardless of location or season; Texas; dye titration.					38.0-37.9					181
	Duncan; Texas; dye titration.					38.7					181
	Duncan; Texas; dye titration:					36.4-48.7					181
	April					33.0					181
	November					41.3					181

India; dye titration.					1
Average and range, 4 samples.				1.66	9
After 1 month at room temperature, average, 2 samples.				{ 1.64-1.78	84
Average and range, 4 samples; titly; dye titration.				{ 3.68	9
Spain; dye titration:				{ 1.69	167
Average and range, 3 samples.				{ 1.62-1.77	9
After 1 month at room temperature; 1 sample.				3.7	22
U. S. A.; dye titration.				4.3	123
Freshly picked; western Australia, dye titration.				4.3	123
Market sample; western Australia, dye titration.				{ 29-40	202
Average and range; dye titration.				{ 35.2	256
do				{ 46.5	106
Thiodrome method.	18			64.0	309
Fluorometric method.					67
Dye titration, hourly; dye titration.				3	34
Japan.					254
Sieved at 3° C. Florida; dye titration.				3.35	52
Rough-lemon roodstock; Florida, dye titration.				{ 4.38	17
do				{ 4.45	17
Key (Mexico); dye titration:				{ 16	85
First of August.				{ 21.5	123
Middle of October, average and range, 5				{ 17.5-26.9	17
New Caledonian variety, freshly picked; western				26	17
Australia, dye titration.				3.22	85
Tahiti (French Beers);				{ 3.23	17
Tahiti (Persian Beers);				{ 3.29	17
Florida; dye titration:				{ 3.8	85
do.				{ 7.4-12.0	52
do.				{ 3.22	26
Rangpur, Florida; dye titration.				58.9	1
Rangpur, average and range, 4 samples; Texas;					1
West Indian or Key variety; average, 14 limes;					1
Florida; dye titration.					1
Florida; dye titration.					1
Bolney variety; India; dye titration.					1

Values per 100 ml.

Item	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)		Vitamin D		Riboflavin	Refer- ences
(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(7a)	(8)
Citrus fruit—Con. Lime—Con.	India; dye titration Dye titration.	I. U.	I. U.	Mq.	Mq.	Mg.	I. U.	I. U.	Mq.	1
Limequat.	Lakeland; average, 12 fruits; Florida; dye titration.					16.8				34
	Ensis; Cleopatra rootstock; Florida; dye titration.					38.8				102
	Ensis; rough-lemon rootstock; Florida; dye titra- tion.					45.9				12
Orangequat.	Nippon; average, 8 fruits; Florida; dye titration.					18				17
Pummelo.	Pumelo Cross; tangelo; Texas; dye titration.					23				52
Satsuma and King Orange.	Satsuma; rough-lemon rootstock; Florida; dye titration.					32.9				85
	King Orange; tangelo; rough-lemon rootstock; Florida; dye titration.					30.3-35.6				17
	King Orange; tangelo; sour orange rootstock; Florida; dye titration.					10-22				17
Sour orange.	Bitter sweet orange; seedling; rootstock; Florida; Bitter orange; Florida.					14-26				17
	Bitter orange; Spain; dye titration.					64-77				17
	Average and range, 6 samples.					43				
	After 1 month at room temperature; Average, 3 samples.					35-54				
Pummelo.	Average and range, 8 samples.					43				9
	After 1 month at room temperature; Average, 2 samples.					22-49				
Satsuma.	Drake; sour orange rootstock; Florida; dye titra- tion.					50-61				17
	Seville variety; range, 24 samples; Spain; dye ti- tration.					18.9-46.5				200
Sweet orange.	Seedling; Florida; dye titration.					30-48				17
	Blood; sweet orange rootstock; Florida; dye titra- tion.					48-51				17
	Blood's Early; rough-lemon rootstock; Florida; dye titration.					52-55				17

[illegible]

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Citrus fruit—Con. Sweet orange—Con.	Homosassa, sweet orange rootstock; Florida, dye titration.	I. U.	I. U.	Mg	Mcp.	Mg.	Mg.	I. U.	I. U.	Mcp.	Mcp.	17
	Indian River, sour orange rootstock; Florida, dye titration.					\$ 42.59						17
	Indian River, average and range, 25 samples from 1934 to 1935; Florida, dye titration.					\$ 36.43						17
	Jaffa, rough-lemon rootstock; Florida, dye titration.					{ \$ 42						17
	Jaffa, rough-lemon rootstock; Florida, dye titration.					{ \$ 32.54						17
	Jaffa, rough-lemon rootstock; Florida, dye titration.					{ 40-46						17
	Picked in September, very acid and immature fruit; Homosassa, fruit damaged by December freeze.					\$ 49						110
	Jaffa, sweet orange rootstock; Florida, dye titration.					\$ 43						17
	Jaffa, variety; range, 5 samples; dye titration.					\$ 42-51						200
	Jaffa, dye titration.					\$ 33.3-53.7						181
	Jaffa, variety; range, 5 samples; dye titration.					\$ 45						181
	Jaffa, variety; range, 5 samples; dye titration.					\$ 47						181
	Jaffa, variety; range, 5 samples; dye titration.					\$ 46.9						17
	Jaffa, variety; range, 5 samples; dye titration.					\$ 51-61						110
	Jaffa, variety; range, 5 samples; dye titration.					\$ 61						110
	Jaffa, variety; range, 5 samples; dye titration.					\$ 54						110
	Jaffa, variety; range, 5 samples; dye titration.					\$ 49						110
	Jaffa, variety; range, 5 samples; dye titration.					{ \$ 48						110
	Jaffa, variety; range, 5 samples; dye titration.					{ \$ 49						110
	Jaffa, variety; range, 5 samples; dye titration.					{ \$ 47-52						52
	Jaffa, variety; range, 5 samples; dye titration.					\$ 43						17
	Jaffa, variety; range, 5 samples; dye titration.					\$ 46						17

[illegible]^a Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
Citrus fruit—Con. Sweet orange—Con.	Pineapple; rough-lemon rootstock; Florida; dye titration.	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	110
	Picked Aug. 30, very acid and immature.					2.45					
	Picked January, commercial, picking.					1.44					
	Pineapple; dye titration.					1.48					89
	Picked in March, sweet and watery.					1.48					
	Pineapple; dye titration.					1.55					
	Picked in March, sweet and watery.					1.55					17
	After 1 month storage at 42° F.					1.55					
	Fresh; range, 4 samples; central Florida.					1.55					
	After 1 month storage at 42° F.					1.55					17
	Fresh; range, 3 samples; east coast of Florida.					1.55					
	Picked in March, sweet and watery.					1.55					
	Pineapple; rough-lemon rootstock; Florida; dye titration.					1.55					32
	Pineapple; sour orange rootstock; Florida; dye titration.					1.55					
	Pineapple; sweet orange rootstock; Florida; dye titration.					1.55					
	Pineapple; average acid range, 6 lots of 5 oranges each; Florida; dye titration.					1.55					52
	Pineapple; Florida; dye titration.					1.55					
	Average, 5 oranges.					1.55					
	Pineapple; Florida; dye titration.					1.55					181
	Average, 5 oranges.					1.55					
	Pineapple; Florida; dye titration.					1.55					
	do.					1.55					181
	Pineapple; dye titration.					1.55					
	Florida.					1.55					
	Pineapple; average for all determinations regardless of location or season; dye titration.					1.55					181
	Pineapple; range, samples from 3 locations; Texas; dye titration.					1.55					
	Ruby (Blood); average, 6 oranges; Florida; dye titration.					1.55					
	do.					1.55					52
	Pineapple; Mediterranean; average 6 oranges; Florida; dye titration.					1.55					
	do.					1.55					
	Santur, India; dye titration.					1.55					245

[illegible]

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a)	References (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Citrus fruit—Con. Sweet orange—Con.	Valencia, rough-lemon rootstock; young trees; 2 picked in November, acid and immature.	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	110
	Picked in March, commercial picking; Pleasantville, Florida.					1.49					
	Picked in June, sweet and watery.					1.30					110
	Valencia, rough-lemon rootstock; picked in April; average and range, 25 oranges; Florida; dye titration.					1.79					
	Fruit picked from outer branches of tree										17
do.										
	Fruit picked from shaded parts of tree										110
do.										
	Valencia, rough-lemon rootstock; Florida; dye titration.					1.34					110
	Valencia, sour orange rootstock; Florida; dye titration.					2.71					
	Picked in November, acid and immature.					1.41					110
	Picked in March, commercial picking; Pleasantville, Florida.					1.33-5.2					
	Partly tart.					1.17-2.3					17
	Picked in June, sweet.					1.7-3.9					
	Picked in November, acid and immature.					1.6-3.9					110
	Picked in April, commercial picking; Pleasantville, Florida.					1.33-5.6					
	Picked in June, sweet.										110
	Picked in December, very acid.					1.27					
	Picked in March, commercial picking; Pleasantville, Florida.					1.7					110
	Picked in July, pleasantly tart.					1.90					
	Valencia, rough-lemon rootstock; picked in April; average and range, 25 oranges; Florida; dye titration.					1.64					110
	Picked in July, pleasantly tart.					1.38					
	Picked in December, very acid.					1.98					110
	Picked in March, commercial picking; Pleasantville, Florida.					1.49					
	Picked in July, pleasantly tart.					1.90					110
	Picked in December, very acid.					1.90					

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin	References
(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(8)
			I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	
Citrus fruit—Con. Sweet orange—Con.	Unmatured seedlings; rough lemon rootstock; fruit grown on top of hill, sunny side of tree. Picked in January, commercial picking; pleasantly tart.					39					110
	Unknown variety; very sweet and slightly acid. Dye titration.					55					17
	Unknown variety; rough-lemon rootstock; Florida; dye titration.					54.62					17
	Unknown variety; dye titration.					39-66					172
	Florida; sac-growth method.			78		40.3					34
	Florida; dye titration.					38.0					30
	Florida; dye titration.					48.6					10
	India; dye titration.					61.5					211
	Fruit grown at bottom of hill, sunny side of tree. After 24 hours at room temperature.					31.2	61.6				1
	India; dye titration.						47.8				
	Fruit grown on top of hill, sunny side of tree.					29.1					
	Fruit grown on top of hill, shady side of tree.					27.4					
	Fruit grown on middle of hill, sunny side of tree.					28.4					
	Fruit grown on middle of hill, shady side of tree.					24.4					185
	Fruit grown at bottom of hill, sunny side of tree.					27.5					
Java; dye titration. Palestine; dye titration.	Fruit grown at bottom of hill, shady side of tree.					23.1					244
	Average and range, 4 samples.					172.9					
	After 1 month at room temperature; average, 3 samples.					84	153				9
	South Africa; dye titration.					53-83					
	Average and range, 4 samples.					57					9
South Africa; dye titration.	After 1 month at room temperature; average, 2 samples.					54-80	153				9
	Average, 2 samples; South Africa; dye titration.					76.9					200

Seedless; average and range, 4 samples; Spain; dye titration; titration: Spain; average, 4 samples After 1 month at room temperature; average Seedless; Spain; dye titration: Average and range, 3 samples After 1 month at room temperature, 1 sample U. S. A.; dye titration Dye titration60 Average and range, 53 samples; dye titration Average and range; dye titration Dye titration U. S. A.; dye titration Average and range; U. S. A.; dye titration: Fresh juice Juice held 1 day in refrigerator at 40°-50° C. Juice held 4 days in refrigerator at 40°-50° C. Juice; dye titration: Stored 5 hours at 38° C. Thiochrome method Clement; large size; average, 3 fruits; Florida; dye titration Minnesota; average and range, 6 lots of 4-5 fruits Minnesota; large size; titration Minnesota; large size; Florida; dye titration Minnesota; medium size; average, 4 fruits; Florida; Orlando; average, 5 fruits; Florida; dye titration Sampson; Florida; dye titration Seville; average and range, 6 lots of 4 fruits each; Florida; dye titration Temple Orange; rough lemon rootstock; Florida; dye titration Temple Orange; sour orange rootstock; Florida; dye titration Temple Orange; rootstock; Florida; dye titration Tangelo orange.....	102 189 71 61 60 80 82 84 86 88 39-77 72 88 37-38 35 38 35 34 64 32 27 22 35 38 38 20 64 53-72	102 142 102 68 200 202 255 157 68 168 354 300 210 52 52 52 52 52 52 17 17 17
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: Values per 100 ml.

Preparation	Commercial samples	U. S. A.	dye titration	Commercial samples	U. S. A.	dye titration
Citrus fruit, canned juice:						
Grapefruit	Juice, stored 5 hours; dye titration: Stored at 6° C.				139	254
	Juice, stored 38° C.				232	254
	Juice, commercial sample; dairy beverage type; dye titration:				50	
	Fresh				14.8	
	After storage 1 week at 7° C.				12.1	222
	Commercial samples; U. S. A.; dye titration: Freshly opened.				14.5	
	After storage 1 week at 7° C.				10.6	222
	Freshly opened.				13.6	
	Sweetened, commercial sample				37.0	
	In tin containers; average and range, 3 brands; dye titration.				29-32	4
	Commercial samples; U. S. A.; dye titration:				43	3
	In tin containers; average and range, 3 samples.				39-43	199
	Unsweetened commercial sample.				35-2	4
	In tin containers; average and range, 3 brands; dye titration.				41.0	102
	Base growth method.					157
	Commercially canned; average and range, 3 brands; dye titration.				11.8	102
	Florida market samples; U. S. A.; dye titration.				29	3
	U. S. A.; dye titration.				10-30	222
	Commercially canned; average and range, 8 brands; U. S. A.; dye titration.				37.7	172
	Commercial samples; dye titration:				24.4	102
	In tin containers; 2 samples.				31.56	3
	In glass containers; 2 samples				29	100
	In glass containers; 2 samples				46	
	In glass containers; 2 samples				9.7	
	In glass containers; 2 samples				43	
Citrus fruits, various parts:						
Grapefruit.	Dye titration:					
	Juice				37.4	53
	Pulp				205.0	
	Fruit				37.3	
Lemon.	Dye titration:					
	Juice				210	9
	Inner thick white skin.				46	
	Whole peel.				100	
	Dye titration:				100	
	Juice				38.7	53
	Peel				132.1	

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin vitamin B ₁ (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Citrus fruit, vari- ous parts—Con- Line.....	Unripe fresh fruit; India; dye titration: Peel.....	I. U.	Mcp.	Mg.	I. U.	Mcp.	211
	Juice.....			65.1 63.9			
	Ripe fruit; India; dye titration: Peel.....			39.6 115.1			211
	Juice.....			32.8 120.8			
	Very ripe and old fruit; India; dye titration: Peel.....			31.2 97.9			211
	Juice.....			120.8 166.7			
	Seville variety; underripe; Spain; dye titration: Cortex portion.....			145.5 243.7			200
	Peel.....			220 72			
	Outer yellow skin.....			190 146			9
	Juice.....			180 57			
Orange	Outer yellow skin.....			180 57			9
	Thick white inner skin.....			122 69			
	Whole peel.....			130 101			9
	Juice.....			102.8 156.0			
	Tight skin variety; India; dye titration: Peel.....						211
	Juice.....						
	Seville variety; medium ripe; Spain; dye titration: Cortex portion.....						200
	Peel.....						
	Outer yellow skin.....						200
	Juice.....						

[illegible]

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Corn—Continued.							
Sweet—Con.							
Frozen—Con.							
	Golden Cross Bantam; 2 commercial samples; U. S. A.; rat-growth method: Stored at 0° F. Stored at -40° F.	I. U. { 100 110 130 200 }	Meg. { 100 110 130 200 }	Mg. { 9.5 9-12.5 }	I. U. { 10 10 }	Meg. { 10 10 }	207
	"On-the-cob"; average and range; harvested Aug. 28-Sept. 24; commercially frozen, U. S. A.; dye titration.						82
	"Corn-on-cob"; commercial sample; U. S. A.; dye titration.						82
	Whole kernel; commercial sample; U. S. A.; dye titration.						63
	Whole kernel; harvested Aug. 22-Sept. 24; com- mercially frozen; average and range; U. S. A.; dye titration.			8.2 { 9.0 7-11 }			82
Sweet or imma- ture field.							
	Indian corn; young ears; India; dye titration.			8.05			1
	Yellow; India; dye titration.			8.6			211
	Young ears; India; fluorometric method.					30	211
	Mango; U. S. A.; fluorometric method.					60	201
	Mature roasting ear stage.					121	126
	"On the cob"; thiochrome method.		144			71	209
Corn flakes.	Commercial product; U. S. A.; rat-growth method.		Trace				28
Corn flour.	Thiochrome method.		NII				209
Corn meal.	White; small amount of bran removed in milling; U. S. A.; rat-growth method.		303				28
	Yellow; small amount of bran removed in milling; U. S. A.; rat-growth method.	333					29
	Yellow; small amount of bran removed in milling; U. S. A.; rat-growth method.		234				26
	U. S. Bioassay Fluorometric method					1,070 430	260

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		I. U. (3a)	I. U. (3b)	Mcg. (4a)	Mcg. (4b)	Mg. (5a)	Mg. (5b)	I. U. (6a)	I. U. (6b)	Mg. (7a)	Mg. (7b)	
Cornmeal—Con- tinued.	Brabham; mature seeds; U. S. A.; rat-growth methods	0		810								105
	Corn, mature seeds; U. S. A.; rat-growth methods	0		1,110								105
	Great, mature seeds; U. S. A.; rat-growth methods	50		900								105
	Iron, mature seeds; U. S. A.; rat-growth methods	0		1,050								105
	Shaw, mature seeds; U. S. A.; rat-growth methods	0		840								105
	do., mature seeds; U. S. A.; rat-growth methods			930								105
	Super, mature seeds; U. S. A.; rat-growth methods											
	(Cream)			780								
	(Brown)	50		850								105
	Winn, mature seeds; U. S. A.; rat-growth methods	0		690								105
Crab	do., mature seeds; U. S. A.; rat-growth method	0		900								28
	do., mature seeds; U. S. A.; rat-growth method			935								41
	Meat; China; dye titration method					12.62				12.6		248
	Muscle, boiled in salted water; Japan; lumiflavin method											209
	Yamaguchi; dye titration method			230		.012				150		72
Canned	Blue crab; meat; Atlantic											(9)
Cracker: Graham. Soda.	Commercial sample; U. S. A.; rat-growth method			75								43
	U. S. A.; dye titration					0						(9)
	Satties, commercial sample; U. S. A.; rat-growth method			110								(9)
Cranberry. Frozen.	Commercial sample; U. S. A.; rat-growth method			200								82
	Boston market; spectrographic method	120										32
	New Jersey; modified dye titration	63.70				19						29
Crayfish.	Boston market; rat-growth method											82
	Boston market, commercial sample; spectrographic method	120										134
	Greenland; dye titration					3						

[illegible]^a International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked-

Values per 100 ml.

VALUES ON RAW-WEIGHT BASIS.

[illegible]

Various organs (see 2197) Egg white, hen's, whole...	Muscle and skin, 63.0 percent moisture; Japan; lumiflavin method.								248
	Fresh; Germany; chromatographic and colorimetric method.								233
	Thiochrome method.	144						55	209
	From White Leghorn pullets, reared on range; Ohio; rat-growth method:								
	On basal diet containing 0.8 mg. riboflavin per gm. supplied								
	On ration containing 1.50 mg. riboflavin per gm. supplied by 5-percent dehydrated alfalfa leaf meal							1 140	
	On ration containing 1.60 mg. riboflavin per gm. supplied by 5-percent dried skim milk							1 210	
	On ration containing 1.00 mg. riboflavin per gm. supplied by 10-percent dehydrated alfalfa leaf meal							1 260	
	On ration containing 2.30 mg. riboflavin per gm. supplied by 5-percent dried skim milk							1 320	
	On ration containing 2.30 mg. riboflavin per gm. supplied by 5-percent alfalfa leaf meal							1 440	
Dried	Vegetables, D. C.; rat-growth method: Summer	1 460							
	Winter	1 620							
	Egg white, hen's, method								29
	Maine market sample, dye titration	268							269
	U. S. A.; dye titration								23
	Commercial sample, rat-curative method								88
	Commercial sample, irradiated, rat-curative method						220	3 300	215
	From 2 White Leghorn hens; basal ration + 400 mg. riboflavin per 100 gm. of ration; U. S. A.; microbiological method:								
	Second hen							305-700	66
	From White Leghorn hens, basal ration only, commercial sample, rat-curative method: U. S. A.; microbiological method:							400-530	
Egg white, hen's...	December 1938								
	February 1939							275	66
								140	

† Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ence
		I. U.	(3a)	I. U.	(4a)	Mg.	(5a)	I. U.	(6a)	Mg.	(7a)	(8)
Endive	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.					12	10					280
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.					13.0						34
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.					14	9					28
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.					13	4					280
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.											26
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.											209
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.											280
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.											126
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.											28
	Batavian Full-Heart; New York; dye titration: Freshly harvested; held for 5 days at 1°-3° C. after harvesting.											216
Fennel	Young leaves; China; dye titration.					11.30						41
	China; dye titration.					50.6						41
Fenugreek	Leaves; India; dye titration: After 24 hours at room temperature.					140.7	98.9					212
	After 5 days at room temperature.						13.4					123
Fig	Adam; freshly picked; western Australia; dye titration.					2						123
	Adam; (Cross); freshly picked; western Australia; dye titration.					2						123
	Brown Turkey; freshly picked; western Australia; dye titration.					2						244
	Chinese; China; dye titration.					3.9						41
	Shyrya; freshly picked; western Australia; dye titration.					8.7						125
	Shyrya; freshly picked; western Australia; dye titration.					3						125

[illegible]

Values on cooked- or processed-weight basis.

⁴ Values on raw-weight basis.

This figure may be significantly affected by method of sampling because of oxidative enzymes.

amit values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (3)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Gooseberry	Cape Gooseberry; western Australia; dye titration.											
	Canada; England; dye titration:											
	Green, hard, small.					22						123
	Green, hard, medium.					22						123
	Green, hard, large.					79						
	Green, slightly soft, mixed sizes.					58						201
	Yellowish-green, soft, mixed sizes.					62						
	Yellow, soft, mixed sizes.					62						
	Whitish; England; dye titration:					16.5						34
	Peorinan; freshly picked; Ohio; dye titration.											
	Whitish; dye titration:											
	Green, hard, small.					48						
	Green, hard, medium, mid-June.					45						
	Green, hard, large, mid-June.					49						
	Green, hard, medium, mid-June.					49						
	Green, hard, medium, 1 week later.					56						
	Green, hard, large, 1 week later.					55						
	Green, hard, medium, 2 weeks later.					55						
	Green, hard, large, 2 weeks later.					57						
	Green, hard, medium, 3 weeks later.					21						
	Green, hard, small, 3 weeks later.					25						
	Green, hard, medium, 3 weeks later.					25						
	Green, hard, large, 3 weeks later.					22						
	Streaked red, soft, small, early July.					27						
	Streaked red, soft, medium, early July.					35						
	Streaked red, soft, very large, early July.					35						
	Streaked red, soft, medium, 1 week later.					37						
	Streaked red, soft, large, 1 week later.					37						
	Streaked red, soft, very large, 1 week later.					37						
	Streaked red, soft, small, 2 weeks later.					29						
	Streaked red, soft, medium, 2 weeks later.					27						
	Streaked red, soft, large, 2 weeks later.					27						
	Red, ripe, medium, mid-July.					39						
	Red, ripe, large, mid-July.					36						
	Red, ripe, very large, mid-July.					30						
	Red, ripe, medium, 2 weeks later.					21						
	Red, ripe, large, 2 weeks later.					21						
	Red, very ripe, small, mid-July.					39						
	Red, very ripe, medium, mid-July.					37						
	Red, very ripe, large, mid-July.					31						
	Red, very ripe, medium, 1 week later.					31						
	Red, very ripe, large, 1 week later.					26						

[illegible]

Values on cooked- or processed-weight basis.

Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Gooseberry—Con.	India, dye titration: Fresh pulp.....	I. U.		Meg.	Meg.	11,784						96
	Do.....					12,438						
	Dried in shade at room temperature.....						11,550					
	Dried in sun.....											
	Fresh pulp.....					811						
	Dried in shade at room temperature.....					13,090						
	Dried in sun.....						12,590					
	Do.....						11,840					
	Fresh pulp.....					689						
	Dried in shade at room temperature.....					13,470						
Canned	India, dye titration: Country (Hilabing): Java, dye titration.....					425						245 244
	Do.....					14.8						
	India, (Malaka): Java, dye titration: Fresh, another sample.....					541.9						
	Commercially canned; average and range; Eng- land, dye titration.....					24						
	Dried in sun, dye titration: India, dye titration.....					13-31						
	Stored 12 days at 0° C.....					1,390						
	Stored 103 days at 0° C.....						1,325					
	Stored 12 days at 20°-25° C.....						1,356					
	Stored 12 days at 25°-28° C.....						760					
	Stored 12 days at 37° C.....						337					
Juice	Eng-land, dye titration: India, dye titration.....					130						39
	From fresh berries.....					880						
	From berries stored 22 days.....					940						
Various parts	India, dye titration.....					890						96
	Fresh, by titration.....					840						
	Whitman: England; dye titration: Green turning red.....						658					
	Inner tissue, pulp, and seeds.....					19						
	Outer tissue.....					24						

Gourd.	Dark red, ripe:	14	201
	Inner tissue, pulp, and seeds:	34	
	Dye:		
	Outer tissue, ripe:	10	41
	Inner tissue, pulp, and seeds:	43	211
	Outer tissue:		
	Bitter; China; dye titration:		212
	Bitter; India; dye titration:	56.40	41
	Bitter; India; dye titration:	88.4	105
	Bitter; India; dye titration:	106.7	41
Various parts.	Green:		
	After 24 hours at room temperature, still green:	5.3	212
	Looked; China; dye titration, room temperature, quite ripe:	115	41
	Snake gourd; India; fluorometric method:		105
	Snake gourd; India; dye titration:		41
	Snake gourd; India; dye titration:		115
	India; dye titration:	19.74	225
	Flesh:	14.1	123
	Skin:	67.1	123
	Grape.	Black Prince; freshly picked; western Australia;	5
Golden; freshly picked; western Australia; dye titration:		2	123
Muscadine; pulp; average and range; Texas; dye titration:		3.7	85
Muscadine; Alexandria; freshly picked; western Australia; dye titration:		1.9-5.5	123
Muscadine; Alexandria; freshly picked; western Australia; dye titration:		4	123
Muscat Canon Hall; partly ripe; freshly picked; western Australia; dye titration:		4	123
Muscadine; Alexandria; freshly picked; western Australia; dye titration:			
Sauvignon and Cabernet; France; thiocarbonyl luminol methods, respectively:			
Ripe:			
Fermented juice:		50-80	84
Grape.	Small Pink; Texas; dye titration:	25-40	85
	Sultana; thiocarbonyl method:	7.2	85
	Sultana; freshly picked; western Australia; dye titration:	2.3	85
	Sultana; freshly picked; western Australia; dye titration:	6	123
	Thompson Seedless; California:	5.5	189
	Thompson Seedless; market sample, U. S. A.; dye titration:		34
	Tokay; Washington, D. C., market, California; rat-growth method:		29
	Xante Current; freshly picked; western Australia;		123

^a Values on cooked or processed-weight basis.

* Values per 100 ml.

^c Values on dry-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Grape—Continued. Wine—Continued.	Palomar: 1935 vintage, stored 12 months; California; rat-growth method.	I. U.	Meg.	Mg.	I. U.	Meg.	190
	Stored 15 months						145
Grapefruit (see Citrus fruit).	Palaemon: California, rat-growth method.						190
	Zinfandel: 1935 vintage, stored 12 months; California; rat-growth method.		0				190
Dried.	Lawn grass: U. S. A.; dye titration.	{ 16, 300- 11, 300 }		73			22
	Orchard grass; fresh green plants, 6-15 inches high; U. S. A.; colorimetric method.						7
Citrus.	Fresh; Sweden; fluorometric method.			78.3			211
	Dried in vacuum; Sweden; fluorometric method.						67
Grouse.	Banana, 6 samples; Wisconsin; rat-growth method.						242
	Microbiological method.						272
Guava.	Roasted; [Scotland]; thiochrome method.		1432				209
	Hill variety; ripe; India; dye titration.			298.0			211
Various parts.	Large Yellow; western Australia; dye titration.			11.0			211
	India; fluorometric method.			110			205
Blackdock.	India; dye titration.			90.0			201
	Flesh.			102			1
Kidney.	Fresh fillets; Washington, D. C., market sample shipped from Boston; rat-growth method.	Nil		185.4			225
	Smoked; thiochrome method.						20
Kidney.	U. S. A.; rat-growth method.	9	Nil				209
	Thiochrome method.						209
Kidney.	Fried; Bradycaedia method.	84					28
		114					209
Kidney.			180				211
							211

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Herring—Continued	Small, 1 sample; [Norway]: Oxidation method.....	I. U.	Meg.	Mg.	I. U.	Meg.	163 209 209 209 209
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
Canned	I. U.	Meg.	Mg.	I. U.	Meg.	163 162
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
Flp, rose	I. U.	Meg.	Mg.	I. U.	Meg.	138
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
Hominy	I. U.	Meg.	Mg.	I. U.	Meg.	138
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
Honey	I. U.	Meg.	Mg.	I. U.	Meg.	20
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
Horseradish	I. U.	Meg.	Mg.	I. U.	Meg.	279 200 34
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	
	I. U.	Meg.	Mg.	I. U.	Meg.	

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (3)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	I. U.	Mcg.	Mcg.	Mg.	Mg.	I. U.	I. U.	Mcg.	Mcg.	
Kidney: Beef.....	Fresh; Sweden; fluorometric method.....											67
	U. S. A.; rat-growth and microbiological methods, respectively.....			316	1,790					2,110	31,770	
	Stewed.....											182, 183
	U. S. A.; microbiological method.....									1,970	31,785	
Goat. Fork.....	Fresh.....									2,850	31,890	183
	[England]; thiochrome method.....			171								
	India; dye titration.....			1,050		17.6						209
	U. S. A.; rat-growth and microbiological methods, respectively.....			519						2,000		
Sheep.....	Fresh.....									1,970		183
	[England]; biochemical method.....			228								
	[England]; thiochrome method.....			570								209
	Water, Prager Test; Germany; dye titration: Fresh, 92.5 percent moisture in sample.....					81.2						
Mutton (see Herring). Mutton.....	After 48 hours at 7° C.; 86.7 percent moisture in sample.....					56.4						229
	After 46 hours at 7° C.; 88.0 percent moisture in sample.....					46.3						
	Fresh, 92.3 percent moisture in sample.....					68.8						41
	After 48 hours at 7° C.; 89.9 percent moisture in sample.....					48.6						
Mutton.....	After 48 hours at 7° C.; 87.0 percent moisture in sample.....					35.7						209
	China; dye titration.....					64.7						
	Germany; dye titration.....					34						161
	Germany; dye titration: Raw.....					37.6						
Mutton.....	Raw, cooked in water, liquid included.....					48.7						161
	Steamed.....					43.8						
	Boiled.....					6						280
	Canned.....					6						
	Average, 6 samples; New York; dye titration.....					66						

³ International Unit values were calculated from carotene analyses or included carotene analyses.

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	References
(1)	(2)	(3a) (3b)	(4a) (4b)	(5a) (5b)	(6a) (6b)	(7a) (7b)	(8)
Lettuce—Con. Various parts—	France; thiocarbonyl and lumifluor methods, fresh.	I. U.	Mcg. 20-30	Mg.	I. U.	Mcg. 30-80	83
	Outer leaves		20-30				
	Germany; dye titration:						
	Outer leaves		2.1-4.1				
	Green leaves of head		8.8				
	Inner leaves of head		3.0				
	Head; dye titration:						
	Green outer leaves		7.5				
	Inner leaves		2.6				
	Fresh; [Olin], dye titration		68.6				279
Wild Citrus fruit; Limequat (see Citrus fruit). Lemon.	India; dye titration: Fresh.			43.0			35
	Stored 35 days at 0°			25.0			
	India; dye titration						
Liver: Auk.	Gillemot; Greenland; dye titration.			44.9			1
Beef.	Average and range, 3 samples; October-November; Boston market sample; rat-growth method.	{ 30, 200 12, 700 15, 800 }		22			134
	Pan-fried 10 minutes; no added fat	41, 800					129
	Europe; fluorometric method	159, 500					
	Fresh; Sweden; fluorimetric method						
	U. S. A.; rat-growth method	267					206
	do A.; microbiological method	1, 389					207
	Raw						28
	Fried						152
	Raw						
	Fried						
	U. S. A.; microbiological method.						183
	U. S. A.; rat-growth method.						
	Fall.						242
	Winter						242

[illegible]

Values on cooked- or processed-weight basis.

Values per 100 ml.

^a Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Vitamin B ₁ (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a) I. U.	(3b) I. U.	(4a) Mg.	(4b) Mg.	(5a) Mg.	(5b) Mg.	(6a) I. U.	(6b) I. U.	(7a) Mg.	(7b) Mg.	
Mango	Full ripe; India; fluorometric method.....					82.2				35		201
	Full ripe; fluorometric method.....									50		201
	Full ripe; titrimetric method.....											201
	Beenal variety; India; fluorometric method.....					5.8				46		201
	Green; India; dye titration.....					13.0						1
	Green; India; dye titration.....					13.3						1
	India; dye titration.....					18						123
	Freshly picked; western Australia; dye titration.....					87.5						
	India; dye titration.....											
	India; dye titration.....											
Various parts	After 10 hours at room temperature.....						26.7					212
	After 116 hours at room temperature, partly ripe.....						26.8					
	After 178 hours at room temperature, fully ripe.....						11.3					
	Full ripe; India; dye titration: Mature, but not fully ripe.....					80.9						212
	After 10 hours at room temperature.....						17.5					
	After 116 hours at room temperature, partly ripe.....						10.6					
	After 178 hours at room temperature, fully ripe.....						7.1					
	Outer skin only; India; dye titration.....					82.1						212
	After 10 hours at room temperature.....						26.9					
	After 116 hours at room temperature, partly ripe.....						26.9					
Mangosteen: Various parts.....	India; dye titration: Outer skin.....					3.1						211
	Outer skin.....					NH						
Maple sugar Various parts.....	Massachusetts; rat-growth method.....	0										74
	Orange; England; thiochrome method.....											209
Margarine (see Oleo- margarine) Margarine.....	Orange; home-made, medium peel content; Eng- land; dye titration.....			NH		<1						9

Sample	Preparation	Method	Value	Reference
Orange, commercial samples:	dye titration:			
Very high peel content:				
High peel content: average and range:	4 samples:		14	
Medium peel content: average and range:	3 samples:		7-11	
Low peel content: 2 samples:			8.0	
			7.0-8.0	
			6.5	
			6.5	
England; thiochrome method:				
England; bradycardia method:				
India; dye titration:			17.8	
Fluid; average and range, 4 samples:	India; dye titration:			
Raw:			2.10	
Boiled:			0.9-1.1	
England; thiochrome method:				
India; fluorometric method:				
Washington dairy farms; microbiological method:				
Open market, Washington; microbiological method:				
Average and range of values on same sample as obtained in 2 laboratories:	U. S. A.; microbiological method		1.305	
			2.940	
			2.150	
			1.740	
			1.900	
Spray process; U. S. A.; modified dye titration:				
2 samples:			7.98	
Respectively reconstituted to 12.5 percent total solids:			1.15	
Rolls, total solids:	S. A.; modified dye titration:		0.25	
In closed tin container:				
Reconstituted to 12.5 percent total solids:				
1 sample:			0.27	
Nat-growth method:				
Microbiological assay:				
Commercial sample; U. S. A.; rat-growth method:				
U. S. A.; microbiological method:			1.760	
Spray-dried sample, England:			1.760	
Fluorometric method:				
Fluorometric method:			0.88	
Roller process; U. S. A.; modified dye titration:			1.028	
Open market, Washington:				
Reconstituted to 12.5 percent total solids:			0.71	
			1.4	

: Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences. (8)
Milk—Continued.							
Cow—Continued.							
Whole—Con.							
	Raw; average and range, morning samples from cows on dairy ration containing green feed; August–September; Pennys/vale; dye titration:						
	Ayrshire.....	I. U.	Mg.	Mg.	I. U.	Mg.	
	Brown Swiss.....			1.00 1.39 1.79			
	Guernsey.....			1.05 1.37 2.31			
	Holstein.....			1.05 1.05 2.33 3.14 2.02			214
	Jersey.....			1.08 2.03 1.08 2.94 2.02 1.71 1.54 3.18			202
	Raw; samples tested directly after milking; January; Wiscousin; dye titration:						
	From Jersey; range for 3 days; cows pastured in summer.						
	From Guernsey; range for 3 days; cows pastured in summer.						
	From Holstein; range for 3 days; cows on winter feed year round.						
	From Jersey; range for 3 days; cows pastured in summer.						
	Kennedy's method:						
	Average, 4 Guernsey cows on alfalfa,ilage, and grain ration.						220
	Average, 8 Guernsey cows on spring pasture, hay, and grain ration.						200
	Range, 11 Holstein cows on alfalfa, hay,ilage, and grain ration.						190–200
	Average, 10 Jersey cows on ryegrass 2 weeks.						186–200
	Average, 4 Holstein cows on spring pasture 3 weeks.						170

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses. Average, November-December 1955

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	References
(1)	(2)	(3a) (3b)	(4a) (4b)	(5a) (5b)	(6a) (6b)	(7a) (7b)	(8)
Milk—Continued.							
Fluid—Continued.							
Whole—Con.							
	Mixed market from Quernsey and Holstein herds; Wisconsin; January-May 1938; method: <i>See</i> text.						
	Average, January-May 1938	1,134.5	Mcp.	Mcp.	I. U.	Mcp.	
	Average, June-October 1938	1,113.0					
	Average, November-December 1938	1,106.5					
	Average, January-May 1939	1,108.6					
	From 7 Holstein cows on regular dairy ration; 1 heifer; rat-growth method:						
	December sample						
	From 1 Holstein cow on standard dairy ration; no concentrates; rat-growth method:						
	1st day after parturition	1,020				200	155
	2d day after parturition	898				270	
	4th day after parturition	1,077					
	7th day after parturition	1,054					
	14th day after parturition	201					
	26th day after parturition	229					
	From 1 Holstein cow on standard dairy ration; 1 calf; hay and concentrates; rat-growth method:						
	Range for entire year	151-202					
	Samples taken in June	188					
	Samples taken in July	188					
	From 1 Holstein cow; Michigan; rat-growth method:						
	On winter ration, January-April	1,877-41					
	On summer ration, May-Aug.	1,104					
	After 2 weeks on May pasture	1,186					
	On pasture, May-September	1,032-282					
	On pasture, September-November	1,217-224					
	Raw certified; from Holstein cows stalled for 1 year, no fresh pasture; average and range, 337 samples; dye titration.			31.82 { 1.37-216 }			130
	From 1 Holstein cow, South Dakota; rat-culative method:						
	Cows on winter ration, April sample						10.84
	Cows on summer ration, August sample						13.38
	After summer pasture, November sample						10.95

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value (3a)	Thiamin (vitamin B ₁) (4a)	Ascorbic acid (vitamin C) (5a)	Vitamin D (6a)	Riboflavin (7a)	Refer- ences (8)
(1)	(2)	(3a)	(4a)	(5a)	(6a)	(7a)	(8)
	From Jersey cows; (England); rat-growth method. Raw: average, 822 analyses from 65 Holstein, Jersey, Guernsey, and Ayrshire cows; Kansas: dye method, 1934. From 2 Shorthorn cows: England; rat-curative method. Summer ration. Winter ration: Cows given fresh grass and kept indoors. Cows kept outdoors. From Shorthorn cows; England; dye titration: After 1½ hour exposure to sunlight in a pint bottle. Range from Michigan dairies: cows pastured as usual; no vitamin A conditions guaranteed; rat-curative method. Range, July-September 1934: 1 U. vitamin A per cow per day; 1934. Range, May-June 1934: From herd of about 150 cows on diet of grain, hay, and alfalfa: 1 U. vitamin A per cow per day; 1934. From herd of about 150 cows on diet of grain, hay, alfalfa, and lucerne: 1 U. of vitamin A per cow per day; Massachusetts: rat-growth method: Cows receiving no supplements; 1935. Cows receiving concentrate providing 30,000 I. U. vitamin A per cow per day; 1936. Cows without supplement; 1937: yielding 30,000 I. U. vitamin A per cow per day; 1937. Raw: evening samples; titrated within 2 hours. From cows on dry ration and silage mold: March-May. From cows on ration hay March-May. From cows on dry ration, milk-March-May.	1,590	Meq.	Meq. ± 2.50	I. U. 1.70 0.68 0.83 2.60	Meq. Meq.	46 284 37 19 6 221

[illegible]

International Unit values were calculated from carotene analyses or included carotene analyses.

: Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.	Mcg.	Mcg.	Mg.	Mg.	I. U.	I. U.	Mcg.	Mcg.
Milk—Continued. Cow—Continued. Fluid—Con. Whole—Con.	Grade A, raw, from college herd, Michigan; dye duration:										
	Winter season:										
	1-day storage.										
	2-day storage.										
	3-day storage.										
	4-day storage.										
	Spring:										
	1-day storage.					11.05					
	2-day storage.										
	3-day storage.					10.34					
	4-day storage.					10.18					
	Summer season:										
	1-day storage.					10.88					
	2-day storage.										
	3-day storage.					10.64					
	4-day storage.					10.52					
	Autumn season:					10.33					
	1-day storage.										
	2-day storage.					10.77					
	3-day storage.										
	4-day storage.					10.42					
	Holder pasteurized, bottled, samples of 30 pro- duced, dye duration:										
	Winter season:										
	1-day storage.					10.99					
	2-day storage.										
	3-day storage.					10.31					
	4-day storage.					10.86					
	Spring:										
	1-day storage.					11.25					
	2-day storage.										
	3-day storage.					10.70					
	4-day storage.					10.40					
	Summer season:										
	1-day storage.					11.90					
	2-day storage.										
	3-day storage.					10.93					
	4-day storage.					10.85					
	Autumn:										
	1-day storage.					11.30					
	2-day storage.										
	3-day storage.					10.65					
	4-day storage.					10.34					

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Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

After exposure to light 1 hour in 1 quart clear vessel.					11.6	
After exposure to light 1 hour in 1 quart brown vessel.						
After exposure to light in 1 quart waxed container.					11.7	
After exposure to light 1 hour in quart clear vessel.						
From mixed herd, average and range, bi-monthly samples over 18-month period; Massachusetts; dye titration:					11.9	
Certified				{ 1.72 1.19 }		
Pasteurized 30 minutes at 145° F. in stainless steel can.					11.45 1.45 }	
Chicago, rat-growth method:						
Raw.....	\$ 33.2	\$ 25.1				
Newly evaporated, reconstituted.....	\$ 20.0	\$ 19.3				
Newly evaporated, reconstituted.....	\$ 37.0	\$ 20.1				
Raw.....	\$ 37.0	\$ 20.0				
Rarely evaporated, reconstituted.....						
Traditioned, newly evaporated, reconstituted.....				11.75		
Average for commercial; raw dairy samples; Wisconsin; dye titration:						
Raw; commercial dairy samples; Wisconsin; dye titration:				11.67 11.82 11.82 11.87 11.21-1.30		
Grade A Guernsey.....						
Certified Guernsey.....						
Certified vitamin D (food liver oil).....	\$ 30.3					
Average and range; Amsterdam market; August and September 1937; thiobromine method.	\$ 31.0					
Amsterdam market sample, thiobromine method:						
Raw, August.....	\$ 30.6	\$ 29.8				
Pasteurized.....						
Raw, August.....	\$ 31.7	\$ 21.5				
Pasteurized.....						
Raw, March.....	\$ 23.7					
Raw.....	\$ 25.5					
Cooked 5 minutes.....		\$ 25.0				
Cooked 15 minutes.....		\$ 23.5				
Cooked 60 minutes.....		\$ 17.6				

Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) I. U.	Thiamin (vitamin B ₁) (4a) Mcg.	Ascorbic acid (vitamin C) (5a) Mg.	Vitamin D (6a) I. U.	Riboflavin (7a) Mcg.	Refer- ences (8)
Milk—Continued. Cow—Continued. Fluid—Con. Whole—Con.	Raw, average and range, 249 cows on 21 farms; Pennsylvania, 1940-41; 10 cows on 1 farm; Pennsylvania, 1940-41; 1 cow; exposed to sunlight 1 hour; Rumania, dye titration.	I. U.	Mcg.	Mg.	I. U.	Mcg.	270
	Pasteurized, average and range, 10 cows on 1 farm; Rumania, dye titration.						270
	Raw, average and range, 19 samples; U. S. A.; dye titration.						270
	Raw, May-June, 4 samples; Massachusetts.						118
	Raw, October-November, 3 samples; Massachusetts.						71
	Cooled, metabolized (yeast) milk, 3 samples; Massachusetts.						71
	Raw, England; thiocrome method.						207
	Average and range, 7 samples; India, dye titration.						
	Raw						
	Bulld						
	Raw; Pennsylvania; dye titration.						38
	Conked						148
	Collected without exposure to air, metals, or light						204
	Pasteurized; England; thiocrome method.						148
	Pasteurized; Pennsylvania; dye titration.						207
	Raw, collected from 3 dairies; Maryland; dye titration.						
	March						
	July						
	Pasteurized; Maryland; thiocrome method.						20
	Pasteurized, autumn, 4 samples; Massachusetts.						28
	Pasteurized, homogenized, autumn, 2 samples; Massachusetts.						71
	Pasteurized, irradiated, average, 245 samples; Massachusetts.						71
	Pasteurized, metabolized (yeast) milk, 5 samples; Massachusetts.						71

Vitamin values per 100 grams of edible portions of foods—Continued

Item	(1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7b)	Refer- ences (8)
			(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	I. U.	Mcg.		
Milk.—Continued. Goat.		Whole, from Toggenburg goats, October 1938-1939; average acid value, 1.5 samples; India, dye titration:					Mg., 0.5-2.0					220
		Raw					{ 0.7-1.1 1.8-2.0	{ 0.1-0.7 0.4				38
Evaporated. Human.		Botted.										225
		Whole, fluid; India, dye titration.					8.5					249
		Whole, fluid; Japan, lumiflavin method.										255
		Bottom product, S. A.; modified dye titration.					± 1.48					263
		After feeding diets high in ascorbic acid value;					± 8				81.6	273
		China, dye titration.										40
		Evaporated, 10 days postpartum, method:										61
		January-June.										168
		1935-December.										198
		Germany; dye titration.										249
		do.										257
		Average and range, 7 samples; India, dye titration.									26.3	268
		Japan, lumiflavin method.										35
		Raw.										35
		No supplement; 3-6 days postpartum.					± 5.3					35
		No supplement; 10 days postpartum.					± 0.4					35
		Supplemented with 20 mg. vitamin C (orange juice); 10 days postpartum.					± 5.6	± 7.3				237
		No supplement; 10 days postpartum.										237
		Supplemented with 30 mg. vitamin C (orange juice); 10 days postpartum.					± 5.5	± 8.1				237
		Average, 37 samples; Germany; dye titration.										268
Sheep.		Ohio; dye titration.										35
		Smaller leaved; Ohio; dye titration.					3.18					35
Milkweed.		Common F. C. No. 22,637; obtained, Washington, D. C.; fermentation method.				760	655.6					35
		German F. C. No. 22,637; same source; obtained, Washington, D. C.; fermentation method.				800	253.7					35
		Yellow, Manitoba, preso; Colorado; obtained, Yellowknife, Canada; fermentation method.				820						235
		Yuba; England; brady's acid method.				180-360						13

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Vitamin B ₁ (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.	Meg.	Mg.	I. U.	I. U.	Meg.		
Muskmelon—Con. Various parts.....	Bender's Surplus; New York; dye titration:									
	Ripe, green portion.....			Meg.	33					
	Ripe, yellow portion.....				24					
	Unripe, yellow portion.....				8					
	Nearly ripe, green portion.....				31					
	Nearly ripe, yellow portion.....				14					
	Overripe, green portion.....				11					280
Mustard greens.	Average, 2 samples; Texas; dye titration				165.0					85
	Raw.....									
	October—December; fat-growth method:									
Mutton.	U. S. A.; dye titration.....									20
	U. S. A.; fat-growth method.....									34
	Lean, raw; (England; bradyardia method; England); thiochrome method.....			138	175.0					28
Nectarine. Nectarine.....	Lean sample.....									11
	Fat sample.....									209
	Freshly picked; western Australia; dye titration.				8			60.4 100.4		223 123
Oats. Oats.....	Loggell; Michigan; colorimetric method:									
	6-inch high.....		112,000							
	10-inch high.....		111,000							
	12-inch high.....		111,000							245
	15-inch high.....		18,750							
Onion. Onion.....	Dried; Michigan; U. S. A. Microbiological method.....		16,000							
	8-10-inch high; Michigan; fat-growth method.									242
	Light; Ohio; fat-growth method.									135
Peas. Peas.....	England; bradyardia method.....									13
	Commercial sample; U. S. A.; fat-growth method.			435-810 720						28

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a) (7b)	References (8)
		I. U.	I. U.	(4a)	(4b)	(5a)	(5b)	I. U.	I. U.		
Onion.	Bermuda; average and range, 6 samples; Texas; dye titration.					Mg. 7.3 4.5-9.9					85
	Bermuda; grown near Washington, D. C.; rate of growth method.	0									29
	Chinese; China; dye titration.					37.2					41
	Sweet Spanish; Montana; rate-growth method and dye titration, respectively.										
	Raw onion.					12.7					
	Cut into sections and boiled 15 minutes.					12.3	16.5				177
	Stored 6 months, cut into sections and boiled 15 minutes.			33			28.5				
	Average and range; Argentina; dye titration.					28					216
	England; dye titration.					24-37.4					200
	After cooking, liquid discarded.					9.7					
	After commercial canning, liquid discarded.						15.6				
	After commercial canning, liquid discarded.						4.8-9				200
	Liquid from canned sample.						2.7				
	Liquid from canned sample.										
	[England; thiochrome method:										
	Canned.			24							209
	Stewed; England; bradyardia method.										13
	Germany; dye titration.			190-150		9.4	22.9				69
	Dried.						4.97				
	Latvia; do.										25
	Latvia; variety; India; dye titration.					8.6	23.0				25
	Cooked.										
	Medium variety; India; dye titration:					7.2	22.5				
	Cooked.										
	Small variety; India; dye titration:										
	Cooked.										
	Young and fresh; India; dye titration.					6.6	21.9				25
	Young; India; dye titration.					10.5					1
	Young; India; dye titration.						Trace				126
	Young; India; dye titration.										123
	Rumania; dye titration.					5.5					204

Dried	Brown; mature; U. S. A.; dye titration.	14.4				34
Winter; globe; U. S. A.; rat-growth method		33.0				28
Germany; dye titration		31.3				59
India; dye titration		16.57				25
Raw						
France; thiodrome and lumiflavin methods, respectively						
(meat)						
Bull portion						
Orange (see Citrus fruit).						
Oyster	Woodfield; extra standard; Washington, D. C., market; rat-growth method.					83
	Whole, 94.6 percent moisture; Japan; lumiflavin method.					29
Frozen	Long Island; rat-growth and rat-curative methods, respectively.					248
	Collected.					
Palm nut oil	"Corozo Negro"; Panama; cortex oil; rat-growth method.	306	1.238		5	281
Peanut oil	"Corozo Gallinazo"; Panama; rat-growth method.	15,800				27
Beef	U. S. A.; rat-growth and microbiological methods, respectively.	4,800	1.321			27
	U. S. A.; microbiological method					182;183
	do.					190
Papaya	Somangka variety; Java; dye titration.					183
	Ripe; average and range, 20 samples; Hawaii; dye titration					244
	Unripe					184
	Very green, no yellow in flesh.					
	Green, slight yellow in flesh.					
	Yellow, no yellow in flesh, but hard.					
	Ripe, flesh yellow and soft.					
	Hawaii; rat-growth methods					
	do. rat-growth and microbiologic method	2,300				
	India; dye titration					
	do. rat-growth method					
	Java; dye titration					
	do. rat-growth method					
	India; dye titration					
	do. rat-growth method					
	India; dye titration					
	do. rat-growth method					
	Japan; modified dye titration					
	Pulp					
	Skin					
	Various parts					

* Values on raw-weight basis.

† Values on cooked- or processed-weight basis.

‡ Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	(1)	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)		Vitamin D	Riboflavin	Pter- oines
		(2)	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)
Fantika		Pods; Germany; dye titration: Freshed in tin; Pods; green; Rumania; dye titration. Pods; red; Rumania; dye titration. Pods; roasted; Rumania; dye titration.	I. U.	I. U.	Mcg.	Mcg.	Mg.	Mg.	I. U.	I. U.
							160 270	+ 15.8 + 290		
Paradise apple		"Deroeck Bail"; Java; dye titration "Deroeck padan"; Java; dye titration					42.3 25.3-26.6			
Parley		Paramount; garden fresh; Ohio; dye titration Zyklop; leaves only; Germany; modified dye titration. Average and range; Argentina; dye titration. Germany; dye titration: Dried Dried					109.4 262 178 {160-200 262.9			
Tasunip		Toledo; titration New York; dye titration U. S. A.; dye titration Hollow Crown; garden fresh; Ohio; dye titration. England; thiochrome method England; thiochrome method; market; cooked; Maryland; ungrowth method Local market sample; average and range; Mon- tana; dye titration: Tennessee Raw, unpared Boiled whole, unpared Eried at once after boiling, unpared Raw, unpared Boiled, unpared and sliced		NII			188 178 32.6 32.7 {29.2-38.5 32.1 {16.7-22.1	1443.6 + 68.0 39.4 34.4 36.8 34.7 37.6 37.5 13.8 17.8		

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Icon	(1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Ethiohasin		Reference (8)
			(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
171	171	Little Marvel; garden fresh; Ohio; dye titration.											171
		Manmoth Melling Sugar; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	Mature; medium; New York; dye titration.											171
		Mature; medium; New York; dye titration.											
171	171	President Wilson; New York; dye titration.											171
		President Wilson; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											171
		Strategem; large; New York; dye titration.											
171	171	Immature.											171
		Mature.											
171	171	President Wilson; large; New York; dye titration.											

[illegible]

* International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked-

Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Ethioflavin	References
(1)	(2)	(3a) (3b)	(4a) (4b)	(5a) (5b)	(6a) (6b)	(7a) (7b)	(8)
Peanut-Continued. Green—Continued.	Thomas Laxton, New York, dye titration:						
	Raw	I. U.	Mcp.	Mg.	I. U.	Mcp.	
	Frozen			118 118			76
	Frosted, held in electric refrigerator 16 hours			118			
	Frosted, held 1 hour at 80° F.			118			75
	Frosted, held 6 hours at 80° F.			118			75
	Thomas Laxton, dye titration:			118			82
	U. S. A., dye titration			118			82
	Boston market samples; spectrographic method.			118			
	California, dye titration:	100- 3,360		118			
	Average, 64 samples; April-June			118			
	Average, 46 samples; September-December.			118			
	Raw						
	Fresh			118			200
	After cooking; liquid discarded			118			200
	After cooking; liquid discarded			118			200
	Liquid from cooked samples			118			200
	Liquid from canned samples			118			200
	Average and range, 6 batches; England; dye titration			118			13
	England; bradycentrifugal method:			118			200
	Raw	489-940		118			13
	Cooked			118			200
	England; thiocrome method			118			200
	Cooked or canned; average and range; England; thiocrome method			118			200
	France; thiocrome and lumiflavin methods, respectively.			118			83
	Germany; dye titration:			118			59
	Blanched			118			59
	Canned in tin			118			59
	Canned in glass			118			59
	Fresh			118			59
	Blanched in tin			118			59
	Germany; thiocrome method:			118			59
	Blanched in tin			118			59
	Canned in tin			118			59
	Canned in glass			118			59

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a)	Refer. sources (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Fruit—Continued. Green—Continued.	New York; dye titration—Continued.										
	Fresh	I. U.	I. U.	Meq.	Meq.	Meq.	Meq.	I. U.	I. U.	Meq.	
	Blanched in Scott blancher 60 seconds at 82° C.					21	21				
	Blanched 60 seconds at 82° C.					21	21				
	Blanched 120 seconds at 82° C.					21	21				
	Blanched 120 seconds at 82° C.					21	21				
	Blanched 40 seconds at 88° C.					20	20				
	Blanched 40 seconds at 88° C.					17	17				
	Blanched 122 seconds at 88° C.					17	17				
	Blanched 124 seconds at 88° C.					17	17				
	Blanched 124 seconds at 88° C.					17	17				
	Blanched 124 seconds at 88° C.					16	16				
	Blanched 124 seconds at 88° C.					16	16				
	Fresh					25	25				139
	Blanched in Berlin-Chapman blancher 40 seconds at 100° C.					17	17				
	Blanched 60 seconds at 100° C.										
Canned.	Fresh					23	23				
	Unblanched, frozen, stored 6 months at -4° C.					21	21				
	Blanched in water 60 seconds at 93° C., held 7 weeks at -4° C.					4	4				
	After 7 weeks at -4° C.										
	After 7 weeks; New York, dye titration.										
	Fresh					25	25				83
	Held 3 hours at 4° C.					28	28				
	Held 3 hours at 4° C.					24	24				
	Held 3 hours at 2° C.										
	Average for 39 samples; Oregon and Washington; dye titration.					19-40	19-40				264
	Average for 39 samples; Oregon and Washington; dye titration.					27	27				138
	U. S. A.; tit-growth method			360						131	126
	U. S. A.; tit-growth method									154	22
	U. S. A.; tit-growth method										
	U. S. A.; dye titration					16	16				
Canned.	Thomas Laxton; Maine; rat-growth method; processed 32 minutes at 115.3° C. in No. 2 can			135	177						72
	Processed 32 minutes at 115.3° C. in No. 2 can										
	Liquid from canned sample										
	Large, liquid discarded; England; dye titration.										
	Immediately after commercial canning.					20.1	20.1				200
	After 26-week storage at room temperature.						12.9				

[illegible]

‡ Values on cooked- or processed-weight basis.

3 Values per 100 ml.
4 Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	I. U.	I. U.		
Figs—Continued. Green—Continued. Frozen—Con.	Dwarf (German; scalded 1 minute at 95° C., frozen pack; Washington; dye titration.										269
	Dwarf (German; scalded 1 minute at 95° C., frozen pack; Washington; dye titration.										
	Raw	1,400									81
	Extra Early Gladus; blanched 1 minute at 85°-95° C., frozen and stored; Washington; rat-growth method.	1,400		500							
	Glenn; blanched 1 minute at 85°-95° C., frozen and stored; Washington; rat-growth method.			300							81
	Imperial; scalded 1 minute at 91° C., frozen pack; Washington; dye titration.					26.4					200
	Laxton's Progress; scalded 1 minute at 92° C., frozen pack; Washington; dye titration.					14.5					200
	Laxton's Progress; scalded 1 minute at 85°-95° C., frozen and stored; Washington; rat-growth method.			200							81
	Laxton's Progress; scalded 1 minute at 85°-95° C., frozen and stored; Washington; rat-growth method.					19.7					200
	Laxton's Progress; scalded 1 minute at 91° C., frozen pack; Washington; dye titration.					16.0					200
	Rogers 95; scalded 1 minute at 89° C., frozen pack; Washington; dye titration.			650							81
	Rogers 95; scalded 1 minute at 85°-95° C., frozen and stored; Washington; rat-growth method.			520							81
	Stratagen; blanched 1 minute at 85°-95° C., frozen and stored; Washington; rat-growth method.										260
	Telephone; frozen pack; Washington; dye titration.					17	14				
	Thawed and analyzed immediately						12				269; 81; 260
	Thawed, stored in sealed container at 25° C., thawed, allowed to stand 1 hour at 25° C., thawed, allowed to stand in refrigerator 24 hours at 4.5° C.						15				
Figs—Continued. Green—Continued. Frozen—Con.	Telephone; scalded 1 minute at 95° C., frozen pack; Washington; dye titration.	1,000		300		18.8					269; 81; 260
	Telephone; scalded 1 minute at 95° C., frozen and dye titration methods, respectively.	1,000		330		21.0					
	Blanched by scalding 1 minute at 95° C. in hot water.	71,000		280		18.5					269; 81; 260
	Blanched by scalding 2 minutes at 95° C. in hot water.			280		17.0					

Blanched by scalding 2 minutes at 88° C. in hot water.	>1,000	340	21.2		
Blanched by scalding 4 minutes at 88° C. in hot water.		279	32.2		
Blanched by scalding 6 minutes at 88° C. in hot water.	1,000	286	32.6		
Thompson Laxton; stored; rat-growth and dye titration method.					391; 260
Blanched by scalding 2 minutes at 71° C. in hot water.		480	8.1		
Blanched by scalding 4 minutes at 71° C. in hot water.		310	7.2		
Blanched by scalding 6 minutes at 71° C. in hot water.		310	9.1		
Blanched at room temperature before blanching by scalding 1 minute in hot water at 96° C.		300	16.1		
Blanched 4 hours at room temperature before blanching by scalding 1 minute at 96° C. in hot water.		290	24.6		
Thomas Laxton; frozen after blanching 50 seconds at 106° C.; Maine; rat-growth method.		300			
Thomas Laxton; New York; photometric method; Grand size No. 6.	1,763				72
Stored 9 months at 0° F.	1,664				
Stored 11 months at 0° F.	1,650				
Stored 9 months at -40° F.	1,735				
Stored 11 months at -40° F.	1,710				246
Ungraded.					
Ungraded.	1,793				
Stored 9 months at 0° C.	1,833				
Stored 11 months at 0° C.	1,853				
Thomas Laxton; New York; dye titration: Raw		17	310 17		76
Cooked 5 minutes (done)					
Drained liquid from cooked peas					
Drained liquid from cooked peas					
Thompson Laxton; New York; held 16 hours at 4.1° C.; dye titration:					
Raw		17	310 19		76
Cooked 5 minutes (done)					
Ungraded					
World Record; blanching 1 minute at 88°-95° C.; frozen and stored; Washington; rat-		710			81

International Unit values were calculated from carotene analyses or included carotene analyses.

² Values on cooked-on^a Values on cooked- or processed-weight basis.

⁴ Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Jules.	Average and range, 3 samples; Texas; dye titration.						85
	Japan; dye titration.						
	Fruit grown with various exposures on tree and on different trees in same orchard.						
	Yam variety; grown on different branches of one tree.						185
	Yam variety; grown on different branches of a second tree.						
Various parts.	India; dye titration.						
	Pulp.						
	Outer skin.						211
Pickle.	Gherkin; [England]; thiochrome method.						
	Seed; [England]; thiochrome method.						209
	Yam; [England]; thiochrome method.						209
	Yam; [England]; thiochrome method.						209
	Green mango; very tender ones preserved in salt.						211
	India; dye titration.						
	Dried mango; salted; India; dye titration.						211
Pigron.	Flesh; China; dye titration.						41
Phac.	Dried; China; dye titration.						41
Seeds.	Sugar beet; Washington, D. C., market; Florida; rat-growth method.						29
Pineapple.	Average and range; Argentina; dye titration.						
	Boston market sample; spectrographic method.						216
	India; dye titration.						211
	India; dye titration.						211
	Freshly picked; western Australia; dye titration.						123
	Rat-growth method.						28
	India; dye titration.						209
	Canned; thiochrome method.						82
	Canned; thiochrome method.						82
	Grated; frozen; Boston market sample; spectrographic method.						26
Jules.	Fish; dye titration.						211
	India; dye titration.						102
	Fresh; dye titration.						3
Canned.	Commercially canned; average and range, 3 brands; dye titration.						102
	Dye titration.						

International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Values per 100 ml.

This factor may be significantly affected by method of sampling because of confidence intervals values on raw-weight basis.

Unpublished data: Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ence (8)
		I. U.	Mcp.	I. U.	Mcp.	Mg.	Mg.	I. U.	Mcp.	Mg.	Mcp.	
Plantain: Various parts.	Freshly picked; western Australia; dye titration.											123
	Red variety; ripe; India; dye titration.											
	Flesh					Trace	11					
	Peel from above fruit.					Nil						211
	Rasthai variety; ripe; India; dye titration.											
	Peel from above fruit.					Trace						
	Common variety; India; dye titration.					Nil						211
	Peel from above fruit.											
	Hill variety; ripe; India; dye titration.					5.5						211
	Peel from above fruit.					Nil						
	Red variety; ripe; India; dye titration.					8.5						211
	Peel from above fruit.					Nil						
Plum.	India; dye titration.					Trace						211
	Flesh					43.1						
	Peel from above fruit.					48.0						225
	Unripe; from above fruit.					23.0						
	Flesh					Nil						211
	Peel from above fruit.											
	Danison; [England]; thiocrome method.			114								209
	Danison; skin removed; U. S. A.; rat-growth.			48								28
	Golden Plum; [England]; dye titration.											
	Flesh					1	11					202
	Made into jam.											
	Greenage; average, 2 batches; England; dye titration.											
	Raw					6.8						200
	Cooked in syrup; liquid included.					12.4						
	Commercially canned in syrup; liquid included.					17.4						
	Greenage; [England]; dye titration.											
	Greenage; cooked or canned; average and range.					3	11					202
	Peel from above fruit.											
	England; dye titration.											202
	Greenage; thiocrome method.											209
	Greenage; average and range, 3 batches; England; dye titration.			198								200
						<4.7						
						<1.0-6.9						

	Greenage; India; dye titration.....	360			<0.5			1
	2; India; titration, D. C., market; California; dye titration.....				3			23
	Satsuma; freshly picked; western Australia; dye titration.....				7			123
	China; dye titration.....				0			41
	Fresh; average and range, 10 batches; England; dye titration.....				<4.6			200
	[England]; bradyardia method.....				<1.0-4.6			11
	Coke; fresh; dye titration.....	120						202
	Dye titration; average and range; [England]; dye titration.....							229
	Average and range, 5 varieties; Germany; dye titration.....				4.6			32
	Fresh; Germany; modified dye titration.....				2.9-6.7			90
	Germany; dye titration.....				16			38
	Fresh.....				6.9			204
	Canned in tin.....							85
	Yellow; India; dye titration.....							85
	India; dye titration.....							102
	Large yellow; average and range, 4 samples; Texas; dye titration.....				<0.6			225
	Small yellow; average and range, 4 samples; Texas; dye titration.....				40.7			225
	Wild red; Texas; dye titration.....				58.6			35
	Fresh; dye titration.....				2.4			(9)
	India; dye titration.....				2.7			85
	Flesh.....				3.5-10.7			85
	Skin.....				13.0			102
	India; dye titration.....				33.7			225
	Flesh.....				320			225
	Skin.....				47.0			35
	Ohio; dye titration.....				400			35
	Mixed dye from Bureau of Plant Industry, Washington, D. C.; mercury method.....	1,500			273.5			35
	Texas; dye titration.....	(ca. 2,000)						85
	India; dye titration.....	3,900			6.0			291
	Jules; dye titration.....				15.6			1

* Values on raw-weight basis.

* Unpublished data, Bureau of Home Economics.

* Values per 100 ml.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

[illegible]^a Values on cooked- or processed-weight basis.⁴ Values on raw-weight basis.

• Unpublished data, Bureau of Home Economics.

^a Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.	Mcg.	Mcg.	I. U.	Mcg.	
Potato—Continued.								
	Edelegg, Germany; dye titration: Raw: Pared, boiled 15 minutes in salt water. Pared, boiled 5 minutes, then kept at cooking heat for 1 hour. Pared, boiled 5 minutes, then kept at cooking heat for 3½–4 hours. April: Raw: Pared, boiled immediately. Unpared, boiled. Edelegg, Germany; dye titration: Edelegg, Germany; dye titration: Raw: Unpared, steamed. Pared, steamed. Pared, boiled. Edelegg, range, samples from 4 places, Germany; dye titration: Large: Small: Edelegg, September, Germany; dye titration: Raw: Pared, boiled immediately. Unpared, steamed. Pared, steamed. Flayk, Germany; dye titration: Raw: Unpared, steamed. Pared, steamed. Pared, boiled. Flayk, range, samples from 4 places, Germany; dye titration: Large: Small: Golden, average, 8 tubers; dye titration: Baked: Boiled in skins: Golden, dye titration: Baked: Stored 5 months, baked. Stored 5 months, boiled. Stored 6 months, pared, boiled.							
					16.3			271
					9.8			
					6.1			
					13.85			
					10.9			210
				81	11.6			
					6.6			230
					6.2			
					5.9			
					5.3–8.3			230
					5.6–7.8			
					23.5			271
					18.9			
					22.5			
					6.2			220
					7.4			
					5.6			
					6.2–8.5			230
					5.8–9.5			
					13.1			
					16.1			166
					16.1			
					25.9			
					23.9			
					24.2			166
					24.2			

mean values per 100 grams of edible portions of foods—Continued

[illegible]

[illegible]² Values on cooked- or processed-weight basis.

* Values on raw-weight basis.

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Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
		I. U.	I. U.	Mcp.	Mcp.	Mg.	Mg.	I. U.	I. U.		
Potato —Continued.	Irish Cobbler; average, 5 samples of 8 tubers each; U. S. A.; dye titration.										
	Irish Cobbler; Washington, D. C., market sample; rat-growth method.										
	Baked 13 minutes at 160° C.										
	Raw and baked 33 minutes			159	116						8
	Irish Cobbler; average, 8 tubers; U. S. A.; dye titration.			135	99						
	Raw										
	Baked in skins										
	Irish Cobbler; old; U. S. A.; rat-growth method.			147		14.7	8.4				166
	Irish Cobbler; stored 10 months; U. S. A.; dye titration.					8.0	8.8				28
	Irish Cobbler; new; U. S. A.; rat-growth method.			193		14.8					23
	Irish Cobbler; new; U. S. A.; dye titration.										21
	Johannsen; early March; Germany; dye titration.					15.5					271
	Raw and baked 15 minutes in salted water						12.7				
	Julilee; Germany; dye titration.										
	April:										
	Raw					12.8	11.8				
	Unpared, boiled						12.8				
	Early March:										
	Raw					12.9					
	Unpared, boiled 15 minutes in salted water.										
	September:						8.4				271
	Raw					19.85					
	Unpared, immediately						16.6				
	Unpared, boiled						17.8				
	Unpared, steamed						24.1				
	Unpared, 15 minutes										
	Julilee; autumn samples; Germany; dye titration.					22.15					271
	Katzen; autumn samples; Germany; dye titration.					20.38					271

Katahdin; dye titration: Grown in Massachusetts.	12.0	166
Grown in Maine.	15.5	
Grown in New York.	15.5	
Average for above 3 samples; 3 tubers each.	12.6	
Katahdin; U. S. A.; dye titration:		166
Stored 5 months, baked.	11.0	
Stored 5 months, boiled.	16.0	
Stored 6 months, parcd, boiled.	11.0	
Stored 6 months, sliced, boiled.	14.0	
Stored 6 months, sliced, boiled.	14.0	
Katahdin; average, 8 tubers; U. S. A.; dye titration:		166
Baked.	11.0	
Boiled in skins.	10.3	
Katahdin; stored 10 months; U. S. A.; dye titration:	16.9	21
Katahdin; new; U. S. A.; dye titration.	25	21
Kerr's Pink; Scotland; dye titration:	31	241
Harvested Aug. 31.	14	
Harvested Sept. 14.		
King Edward; England; dye titration:	30	201
Average and range, 3 samples; early June.	28-33	
Average and range, 3 samples; late June.	32-33	
Average and range, 4 samples; mid-July.	32-36	
Average and range, 4 samples; early August.	29-30	
Average and range, 8 samples; late August.	25-33	
Average and range, 8 samples; late August.	32-40	
King Edward; Scotland; dye titration:	30	
Stored 1 month at 2°-8° C.; (from healthy plants with mosaic)	31	
Stored 1 month at 2°-8° C.; (from plants infected with mosaic)	28-34	
Stored 3 months at 2°-8° C.; (from healthy plants)	23-31	
Stored 4 months at 2°-8° C.; (from plants infected with mosaic)	24.5	
Stored 4 months at 2°-8° C.; (from plants infected with mosaic)	8.2	241
Harvested July 26.	14.7	
Harvested Aug. 31.		
Harvested Aug. 31.	21	241
Harvested Aug. 31.	30	

Values on cooked- or processed-weight basis.

⁴ Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		References
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Potato—Continued.	Maltese; Scotland; dye titration: Stored 1 month at 2°-8° C.; (from healthy field with mosaic). Stored 1 month at 2°-8° C.; (from healthy plants). Stored 4 months at 2°-8° C.; (from healthy plants). Stored 4 months at 2°-8° C.; (from plants in- fected with mosaic). Malesic; [England]; thiochrome method. Malta, pared; Holland; thiochrome method: Cooked. Netted Gem; Montana; dye titration: New, raw, washed and boiled 35 minutes at 95° C. Cooked. Steamed 45 minutes. Cooked at 17½ pounds steam pressure 5-8 minutes. Baked 1 hour at 225° C. Fried in butter 20 minutes. Fried in butter 20 minutes. Cooked, held 24 hours at 4.4° C., and fried in butter 10 minutes. Cooked, held 24 hours at 35 minutes. Escalloped (baked 70 minutes at 176.7° C.). Stored 6 months at 37.5°-45.9° F. and 81.4-94.4 percent relative humidity. Stored, cooked 35 minutes, 95° C. Stored, steamed 45 minutes. Stored, cooked at 17½ pounds steam pressure 5-8 minutes. Stored, baked 1 hour at 225° C. Stored, fried in butter 20 minutes. Stored, fried in butter 20 minutes. Stored, cooked, held 24 hours at 4.4° C., and fried in butter 10 minutes. Stored, cooked, held 24 hours at 35 minutes. Stored and escalloped (baked 70 minutes at 176.7° C.). Stored, cooked at 55.0-60° F. and 42.2-56.9 percent relative humidity. Stored 6 months at 55.0-60° F. and 42.2-56.9 percent relative humidity, cooked 45 minutes at 95° C.	I. U. I. U.	I. U.	Meg. Meg.	Meg. Meg.	Meg. Meg.	Meg. Meg.	I. U. I. U.	I. U. I. U.	Meg. Meg.	Meg. Meg.	241 210 289 178
						18.3	21.5					
						8.9	7.9					
						13.3	11.5					
						17.0	11.9					
						11.9	11.5					
						19.4	19.4					
						19.4	19.4					
						8.9	8.5					
						8.4	8.4					
						8.4	8.4					
						10.8	10.8					
						8.5	8.5					
						8.4	8.4					
						7.7	7.7					
						7.7	7.7					
						9.9	9.5					

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin (7a) (7b)	Refer- ence (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
Potato—Continued.	Triumph; dye titration: Grown in Idaho. Tubers in Louisiana, 5 months storage. Baked. Stored 5 months, baked. Stored 6 months, parod, boiled. Sliced, boiled. Up-to-date; Stored 1 month at 2°-3° C.; (from healthy Storage) Stored 3 months at 2°-3° C.; (from plants in- fected with mosaic) Stored 4 months at 2°-3° C.; (from healthy Storage) Stored 4 months at 2°-3° C.; (from plants in- fected with mosaic) Wagon average, 5 tubers; dye titration: Raw. Baked. Boiled in skins. Whole. Grown in California. Grown in Virginia, 2 months storage. Zephyr; parod; sliced. Raw. New, raw. 1 batch, England; dye titration: New, raw. After cooking liquid discarded. After cooking liquid discarded, liquid dis- carded. Liquid from cooked sample. Liquid from canned sample. New, raw. After cooking liquid discarded. After cooking liquid discarded, liquid dis- carded. Liquid from cooked sample. Liquid from cooked sample.	I. U.	I. U.	Mcg.	Mcg.	Mg.	Mg.	I. U.	I. U.	Mcg.	Mcg.
						13.2	5.1				106
											106
							18.2				106
							18				106
							14.2				106
							18.2				106
							13.2				106
						21.2					241
							24.8				241
						10.2					166
							10.4				166
						14.6					166
							11.1				166
						12.1					166
						7.3					166
				63	63						268
						46.6					268
							18.2				268
							118.2				268
							12.8				268
							12.8				268
						23.1					268
							23.6				268
							4.8				268
							11.8				268

200	New, average, 2 batches; England; dye titration.						
210	[England]; thiochrome method.						
209	Bleiled; England; thiochrome method.						
202	New, cooked; average and range; [England]; dye	+120	90			34.8	
203	{ Old, cooked; average and range; [England]; dye						
11	{ titration.						
200	{ Bleiled and packed; [England]; band-spectra method.	+100					
59	{ [England]; thiochrome method.	+114					
	In strips; Germany; dye titration:						
	Fresh.....					15.4	
	Dried.....						
	Dye.....						
	Average and range, stored from October-June;						
	Germany; dye titration:						
	October:						
	Raw.....						
	Boiled.....						
	November:						
	Raw.....						
	Boiled.....						
	February:						
	Raw.....						
	Boiled.....						
	April:						
	Raw.....						
	Boiled.....						
	June:						
	Raw.....						
	Boiled.....						
	Holland; dye titration.						
	Holland; dye titration.						
	Raw.....						
	Cooked 45 minutes						
	Unpared; India; micro-metric method						
	India; dye titration.						
	Raw.....						
	Unpared; boiled.						

at 120°C. or cooked, or processed, weight basis.

Values on raw-weight basis.

^a Values on dry-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)	Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)	Vitamin D (6a) (6b)	Riboflavin (7a) (7b)	Refer- ences (8)
Potato —Continued.	Yield, rate-growth and dye titration methods, respectively:	I. C.	Mfg.	Mfg.	I. C.	Mfg.	
	Raw.		150	7.0			54
	Cooked.			11.2			90
	Uncooked, sliced dye titration.						
	Raw.			22.0-23.5			204
	Average and range, 9 varieties stored 4 weeks at 2°-8° C.; Scotland; dye titration.			3.0-17.5			
	Average and range, 12 varieties stored 2 months at 2°-8° C.; Scotland; dye titration.			22.0			241
	Average and range, 16 varieties stored 4 months at 2°-8° C.; Scotland; dye titration.			17.2-28.3			241
	Average and range, 18 varieties stored 6 months at 2°-8° C.; Scotland; dye titration.			10.0-13.3			241
	Average and range, 18 varieties stored 6 months at 2°-8° C.; Scotland; dye titration.			9.2			241
	Spectrofluorimetric method.			7.5-12.6			241
	New, U. S. A.; dye titration.			9.0			241
	Old, U. S. A.; dye titration.			7.0-11.3			67
	Average, 8 varieties of 9 tubers each; U. S. A.; dye titration.			17		10	22
	Raw.			8			22
Julose Various parts	Boiled in skins			13.8			166
	U. S. A.; dye titration			18.9			196
	U. S. A.; fluorometric method			10			126
	Cooked; U. S. A.; dye titration.					44	136
	Fresh; U. S. A.; dye titration.			12.1		45	68
	India; dye titration:						102
	Skin.			36.3			225
	Average, 4 varieties; Scotland; dye titration:			58.0			
	Sprouted in dark, stem end section						62
	Sprouted in dark, bud end section						8
	Sprouted in light, bud end section						7.7
	Sprouted in light, middle section.						16.1
							241

Prickly apple.	Irish Cobbler baked; Massachusetts: dye titration:									
	Average and range, center portions									
	Average and range, median portions									166
Prune.	Average and range, epidermal portions									
	[Zuuraki]; Java, dye titration									244
	Fresh; California	11,000 or more								189
Dried.	A.: dye titration:									
	Commercial samples; steamed and canned, U. S.									
	In tin containers; 2 samples									
	Pulp, frozen; Boston market sample; spectrographic method.	112,000								
	Boston market sample; spectrographic method	{ 1,400 }								
	Free-dried; California; rat-growth method	{ 3,460 }								
	Free-dried; California; rat-growth method	1,660								
	Cooked; U. S. A.: dye titration									
	Thiodrome method:									
	Raw; bradycardia method	114								209
Pumpkin.	Cooked; dye titration	270								11
	Big Tom variety of field pumpkin; cooked; Mary-land; rat-growth method	1,200								262
	White variety; India, dye titration									
	White variety; India, dye titration									
	India; dye titration									
Various parts.	Leaves									
	Stems									
	Skins									
	Seeds									
	Stewed									
Rabbit.	Urshenall; thiodrome method									
	Muskeget; U. S. A.: dye titration									
	Stewed; [England]; bradycardia method	33								209
Various organs (see liver).										22
										11

¹ Values per 100 ml.

² Values on raw-weight basis.

¹ International Unit values were calculated from carotene analyses of included carotene analyses.

² Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		I. U. (3a)	I. U. (3b)	Mcg. (4a)	Mcg. (4b)	Mg. (5a)	Mg. (5b)	I. U. (6a)	I. U. (6b)	Mcg. (7a)	Mcg. (7b)	
Radish	Soviet Globe; Washington, D. C., market; Maryland; rat-growth method.											29
	White-leaved; U. S. A.; dye titration.						29.1					34
	Average and range; Argentina; dye titration						27					216
	England; thiochrome method			39			28-28					209
	England; thiochrome method			180								210
	Pink variety; India; dye titration.						10.9					211
	India; dye titration						15.0					211
	India; fluorimetric method						40					291
	Red; U. S. A.; dye titration									20		21
	U. S. A.; fluorimetric method						25			35		126
Various parts	Young leaves; Fish.											225
	Leaves						16					
	Young leaves; India; dye titration						43					
Raisin	Young leaves; India; dye titration						113.8					1
	Sultana; California rat-growth method.	Nil		108								20
	U. S. S. R.; dye titration			235								(9)
	Brady's dye method.			87								209
Raspberry	Thiochrome method.											29
	Black; Washington, D. C., market; California; rat-growth method.	Nil										28
	Black; Washington, D. C., market; New Jersey; rat-growth method.	133		<25								29
	Red; Washington, D. C., market; New Jersey; rat-growth method.											21
	Red; U. S. A.; dye titration			<25			25					21
	Red; U. S. A.; dye titration											28
	Red; frozen; Boston market sample; spectrographic method.		1 ± 520									53
	Average and range; England; dye titration											202
	Fresh; average; 1 batch; England; dye titration						21-37					200
	England; dye titration											202
	Made into jam.											13
	England; brady's dye method			76-105			19					229
	Average, 3 varieties, Germany; dye titration						37.6					

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Sample Name	Preparation Method	Weight (g)	Volume (ml)	Concentration (g/100 ml)	Notes
Rutabaga	American Purple Top; Washington, D. C., market, cooked; Maryland, rat-growth method. (England); thiochrome method.	75			20
Sage	U. S. A.; rat-growth method.	75			209
Flour	94 percent extraction of grain; Germany.	300			2
	65 percent extraction of grain; Germany.	144			2
Germs	(England); bradyardia method.	2, 250			11
Green plant	Michigan; chromatographic-spectrographic method.	115, 400			187
	Fresh green plants 4-15 inches high; U. S. A.; colorimetric method.	115, 250			187
		19, 200			7
Whole grain	For extraction method:	114, 000			
	Albuzeez, Virginia, obtained Washington, D. C.	410			
	Balboa, Virginia, obtained Washington, D. C.	500			
	Ballou, Nebraska; obtained Washington, D. C.	570			
	Dakota; obtained Washington, D. C.	570			
	Kerran; Virginia, obtained Washington, D. C.	450			
	Kerran; Michigan; obtained Washington, D. C.	450			
	Rosen, Michigan; obtained Washington, D. C.	450			
	Rosen, obtained Michigan.	400			
	Smoot, D. C.; Virginia, obtained Washington, D. C.	500			
	W. S. Fed.; Wisconsin; obtained Washington, D. C.	470			
Sage	Average, 1 sample, 2 samples; Holland, thiochrome method.	320			288
	Germany	300			2
Sage	No. 2, U. S. A.; rat-growth method.	NI			29
	No. 3, U. S. A.; rat-growth method.	468			26
		303			28
Sage	Garden fresh; Ohio, dye titration.	25.0			34
Sage	Thiochrome method.	NI			209
Salmon	Back muscle, 48.2 percent moisture; Japan; luminin method.				219
	Red cher, salted; 5.6 percent fat; Norway; rat bio-				6

International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Unpublished data, Bureau of Home Economics.

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin	References
(1)	(2)	(3a)	(3c)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(8)
Salmon—Con. Canned.	Chinook; commercial samples; Columbia River; rat-growth and rat-cursive methods, respectively.	I. U. >400		Mg.	Mg.	Mg.		I. U. 210		Mg.	57
	do; commercial sample; Columbia River; rat-cursive method.	800						260			57
	do; commercial sample; Columbia River; rat-cursive method.	800						350			57
	Chum; commercial samples; Alaska; rat-growth and rat-cursive methods, respectively.	25-30						100-250			57
	do; commercial sample; Alaska; rat-cursive method.	30						71c			57
	Pink; commercial sample; Alaska; rat-cursive method.										57
	Pink; commercial sample; Alaska; rat-growth and rat-cursive methods, respectively.	100						400			57
	Red; commercial samples; Alaska; rat-growth and rat-cursive methods, respectively.	100						750			57
	Red; commercial sample; Alaska; rat-growth method.	250						620			57
	Thiostroma method.			Trace 114				800			
Saffy	Sandwich Island; U. S. A.; dye titration.					7.3					26
Sardines.	Brisling; 1 sample; Norway; thiamin method.										209
	Osage; 1 sample; Norway; rat-growth method.										34
	Braling; Norway; rat-growth and rat-cursive methods, respectively.										
	Raw, 1933	303									
	Smoked, 1933										
	Smoked, 1935	1 357									
	Canned, 1933; 2 3 months after canning	1 270									
	Canned, 1935; 2 3 months after canning	1 357									
	Canned, 1935; 5 months after canning	1 413									
	Smoked, 1936; 1 sample	254									
	Canned, 1936; 25-27 months after canning.	1 357						1 400			
	Canned, 1936; 25-27 months after canning.	1 270						1 417			
	Canned, aluminum pack; 4 years after canning; 1 sample.										
	Canned, aluminum pack; 8 years after canning.							1 480			

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a)	I. U.	Thiamin (vitamin B ₁) (4a)	Mcg.	Ascorbic acid (vitamin C) (5a)	Mg.	Vitamin D (6a)	I. U.	Riboflavin (7a)	Mcg.	Refer- ences (8)
Sauerkraut—Con- tinued												
	Aged 1 month before canning; U. S. A.; dye titration:											
	Solids 1 month after canning.....						25					
	Liquid from above sample.....						23					
	Solids 2 months after canning.....						25					
	Liquid from above sample.....						23					
	Aged 3 months before canning, 7 months after canning; U. S. A.; dye titration:						24					
	Liquid from above sample.....						13					
	Aged 10 months before canning; U. S. A.; dye titration:						12					
	Solids, 5 days after canning.....						21					
	Liquid from above sample.....						21					
	Solids 10 days after canning.....						8.2					
	Liquid from above sample.....						5.7					
	Commercial samples; U. S. A.; dye titration:						7.5					
	In tin containers; average and range, 3 } In glass container, 1 sample.....						8.2					
	Commercially canned; U. S. A.; rak-growth method.....		0				8.2					
Sausage (see Pork).	Julius, U. S. A.; dye titration.....											
Scallops	Washington, D. C., market sample, rak-growth method.....		Nil									
Seal	Fjord seal; flesh; Greenland; dye titration.....						2					
Sea mussels	Greenland; dye titration.....						6					
Seaweed	Chlorophyceae Ulva lactuca; green; February—April; dye titration.....						27-28					
	Rhodophyceae; varieties; dye titration.....						3-77					
	Rhodophyceae; 3 species or red varieties; dye titration.....						24-83					
	Laver, China; dye titration.....						61, 10					

[illegible]

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
		I. U.	I. U.	Mcg.	Mcg.	Mg.	Mg.	I. U.	I. U.	Mcg.	Mcg.	
Soybean	Brazil; green, freshly shelled; U. S. A.; dye titration					40.4						34
	Jagan, green, freshly shelled; U. S. A.; dye titration					42.8						34
	Indian, grown on sandy loam soil fertilized with superphosphate and muriate of potash; Alabama; spectrophotometric method											
	FPI-No. 90,637	11,175										
	FPI-No. 84,642	11,138										
	Manitoba	11,006										
	Manitoba	1,828										
	Manitoba	1,828										
	FPI-No. 91,423	1,828										
	FPI-No. 85,323	1,828										
	FPI-No. 71,543	1,793										
	Delmonah	1,793										
	FPI-No. 85,560	1,688										
	Chavre, 35,753	1,650										
	Chavre, 35,753	1,650										
	Haino, green selection	1,671										
	FPI-No. 88,508	1,644										
	FPI-No. 85,323	1,644										
	FPI-No. 87,079	1,638										
	Haino, yellow selection	1,605										
	FPI-No. 85,323	1,570										
	Rokusan	1,440										
	FPI-No. 85,323	1,433										
	FPI-No. 90,260	1,428										
	FPI-No. 82,196	1,383										
Mature	Green S. A., rat-growth method		0									28
	Bliss; dry; U. S. A.; rat-growth methods			472								105
	Bliss; dry; U. S. A.; rat-growth methods			1,060								105
	Laredo; dry; U. S. A.; rat-growth methods	130		1,080								105
	Mammoth yellow; dry; U. S. A.; rat-growth methods	0		1,230								105
	Mammoth yellow; dry; U. S. A.; rat-growth methods			1,140								105

240

28

105

105

105

105

105

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Biotin (8)
		I. U.	I. U.	Mg.	Mg.	Mg.	Mg.	I. U.	I. U.		
Spinach—Continued.	Broad Flanders, New York; dye titration: Spring										
	Grown on muck soil					49					
	Grown on upland soil					89					
	Autumn										
	Grown on muck soil					66					
	Grown on upland soil					113					
	Essex, New York; dye titration: Spring					62					
	Grown on upland soil					77					
	Holland; dye titration: Spring										
	Grown on muck soil					42					
	Grown on upland soil					73					
	Autumn										
	Grown on muck soil					63					
	Grown on upland soil					90					
	Holland; dye titration: Fresh					79					
	Stored 3 days at 1°-3° C										
	Stored 7 days at 1°-3° C										
	Stored 17 days at 1°-3° C										
	Stored 3 days at 22°-26° C										
	Stored 7 days at 22°-26° C										
	King of Denmark; New York; dye titration: Spring										
	Grown on muck soil					40					
	Grown on upland soil					64					
	Autumn										
	Grown on muck soil					65					
	Grown on upland soil					80					
	Long Standing Bloomsdale; New York; dye titration: Spring										
	Grown on muck soil					49					
	Grown on upland soil					74					
	Autumn										
	Grown on muck soil					63					
	Grown on upland soil					80					
	Nobel; New York; dye titration: Spring										
	Grown on muck soil					55					
	Grown on upland soil					79					

[illegible]

Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		I. U.	I. U.	Meg.	Meg.	(5a)	(5b)	I. U.	I. U.	Meg.	Meg.	
Synthetic —Continued	Vitofay, inner leaves; Germany; modified dye titration					100						32
	Vitofay, New York; dye titration:											
	Spring:					53						
	Grown on muck soil					78						
	Grown on upland soil					54						254
	Autumn:					32						
	Grown on muck soil					11-47						
	Grown on upland soil											216
	Average and range; Argentina, dye titration											
	Boston market; spectrophotometric method											82
	Average of range; Boston market, dye titration:	116,400				35-38						
	April, Virginia					41						
	December, Texas					68						
	November, Virginia					14-47						82
	November, Massachusetts											
	Range, 2 batches; England; dye titration:					32.1-46.8						
	Fresh											
	After cooking, liquid discarded											
	After commercial canning, liquid discarded											
	Liquid from cooked samples											200
	Liquid from canned samples											
	Fresh, average and range, 4 batches; England;					30.0-32.7						
	England; Benedict's method					12.1-21.4						
	Cooked or canned; averages and range; England;											200
	dye titration					80.4						
	Germany, dye titration:					32.1-118.1						11
	Fresh											202
	Blanched											
	Dried											
	Dried											59
	Germany, dye titration:					42.5						
	Fresh, 2 days in cool storage											
	After 4 days in cool storage					24						279

Range, 5 samples; Germany, dye titration	11-52.7	27
Small lot; Holland, dye titration:		
Fresh		
Held 1 day at 15° C.	35	137
Stored 5 days at 4° C.	5	5
Large lot; Holland, dye titration:		
Fresh		
Held 1 day at 15° C.	46	137
Stored 5 days at 4° C.	3	3
Holland, dye titration:		
Fresh leaf ¹ in ice box	60	
Held 5 days in ice box	15	
Held 1 day at room temperature	31	137
Held 5 days at room temperature	49	
Grown in Holland; photometric and dye titration methods, respectively:	8	
With a balanced mineral solution:		
Held 1 day at room temperature	33	
Stored 5 days at 4° C.	16	
Grown in Holland; photometric and dye titration methods, respectively:	47	
With a solution deficient in potassium	29	137
With a solution deficient in nitrogen	51	
With a solution deficient in magnesium	4,679	
Grown in Holland; photometric and dye titration methods, respectively:		
With no added fertilizer	71	
With various combinations of organic nitrogen and phosphate:	69-150	
With no added fertilizer	15,850	
With various combinations of organic nitrogen and phosphate:	56	
With no added fertilizer	68-116	
With various combinations of organic nitrogen and potassium oxide:	64	
With no added fertilizer	81-150	
With various combinations of organic nitrogen and potassium oxide:		
Held 1 day at room temperature	110,300	
Held 5 days at room temperature	116,500	
With no added fertilizer	18,300	
With various combinations of organic nitrogen and potassium oxide:	70-142	
Held 1 day at room temperature	36.9	
Held 5 days at room temperature	53.3	
After the rains	36.9	211
Collected during dry, sunny weather; India, dye titration:		
Fresh		
Held 24 hours at room temperature	18,448	211
Held 5 days at room temperature	5,746	
Held 2 days at room temperature	5,746	

International Unit values were calculated from carotene analyses or included carotene analyses.

* Values on cooked- or processed-weight basis.

Values on cooked - or processed basis.
Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Elitobavin (7a) (7b)	Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)		
	Collected during wet, rainy season; India; dye titration:			<i>Mcp.</i>	<i>Mcp.</i>	<i>Mcp.</i>	<i>Mcp.</i>	<i>I. U.</i>	<i>I. U.</i>	<i>Mcp.</i>	
	Fresh					53.3	54.1				211
	From 24 hours at room temperature					54.3	54.3				211
	Held 5 days at room temperature					54.3	54.3				211
	Held 5 days at room temperature					54.3	54.3				211
	From garden treated with farmyard manure					38.9	38.9				211
	From poorly manured garden					63.7	63.7				211
	Indig; dye titration:					123.9	123.9				226
	Stored for 24 hours at 5° C					31.5	31.5				201
	Boiled, cooking water included					224	224				201
	Tender; titrated by volumetric method					84.4	84.4				20
	India; titrimetric method					162.8	162.8				20
	Leaves; Japan; modified dye titration					84.4	84.4				20
	2 determinations on same sample; Michigan; New Jersey; dye titration:					84.4	84.4				20
	Raw; average and range, 10 lots.					84.4	84.4				20
	Steam-cooked; average and range, 10 lots.					84.4	84.4				20
	Cooked in water; average and range, 10 lots.					84.4	84.4				20
	Frozen; average and range, 10 lots.					84.4	84.4				20
	Frozen; cooked in water; average and range, 10 lots.					84.4	84.4				20
	Commercially canned; average and range, 6 lots.					84.4	84.4				20
	Average and range, 12 autumn varieties grown on upland soil; New York; dye titration.					84.4	84.4				20
	Average and range, 11 autumn varieties grown on upland soil; New York; dye titration.					84.4	84.4				20

Vitamin values per 100 grams of edible portions of foods—Continued

Item	Description of sample	Vitamin A value	Thiamin (vitamin B ₁)	Ascorbic acid (vitamin C)	Vitamin D	Riboflavin	References
(1)	(2)	(3a) (3b)	(4a) (4b)	(5a) (5b)	(6a) (6b)	(7a) (7b)	(8)
Synthetic—Continued Canned—Con.	Commercial sample, strained and canned; U. S. A.; 1627 samples.	I. U. 12,000	Mcg. 16.8	Mg. 2.5	I. U. 1	Mg. 1	109
	Commercial samples; strained; U. S. A.; dye titration.	I. U. 11,700					
Dried	In tin containers, 2 samples.						189
	In glass container, 1 sample.						
Frozen	Commercial, strained; U. S. A.; dye titration.						108
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						200
	Commercial samples; strained; U. S. A.; dye titration.						
Various parts	Commercial samples; strained; U. S. A.; dye titration.						

[illegible]

Sternach..... Hog; China; dye titration.....
; International Unit values were calculated from carotene analyses or included carotene analyses.

Values on cooked- or processed-weight basis.

Values on raw-weight basis.

This figure may be significant

↑ This figure may be significantly affected by method of sampling because of oxidative enzyme loss.

	Danmark; dye titration:	Fresh.	198
Canned product, stored 3 months at 15° C.		63	+10.2
Canned product, stored 6 months at 15° C.			+11.5
Canned product, stored 9 months at 15° C.			+15.7
Freezing range and range 5 batches; England; dye titration.		{ 65.1 51.7-57.5 }	+13.5
1 batch; England; dye titration:			
After cooking in sirup, liquid included.		71.4	+28.4
After commercial canning in sirup, liquid included.			+45.2
Average and range; England; dye titration -			
England; dye titration:		{ 61 44-93 }	
Made into jam.		85	+32
[England; bradyerdia method]			
England; dye titration:	Trace		
Immediately after commercial canning, sirup included.		185.1	+85.1
Product stored 7 weeks at room temperature.			+44.9
Canned product, stored 18 weeks at room temperature.			+38.8
Raw		224.6	
Immediately after commercial canning, sirup included.			+45.2
Canned product, stored 7 weeks at room temperature.			+34.8
Canned product, stored 36 weeks at room temperature.			+33.3
Raw		165.1	
Immediately after commercial canning in skittling cooker, sirup included.			+58.6
Canned product, stored 7 weeks at room temperature.			+44.1
Canned product, stored 35 weeks at room temperature.			+42.6
Raw		152.1	
Immediately after bottling in sirup, liquid included.			+46.7
Product, stored 7 weeks at room temperature.			+33.8
Bottled product, stored 36 weeks at room temperature.			+24.8

Sweetpotato	Jersey variety, U. S. A.; dye titration. Navy; Earl; Maryland; rat-growth method. Cooked	32.6				34
	Nancy Hall; U. S. A.; rat-growth method. Early; Earl; Maryland; average and range, 3 samples; Texas; dye titration.	53				29
	Produce; Iowa; rat-growth method. Early; Earl; Maryland; average and range, 3 samples; United States; decolorized in N, P, K and organic matter	2,520				28
	Muriate of potash added to sand	2,050				85
	Sodium nitrate added to sand	1,960				
	Superphosphate added to sand	2,550				
	China; dye titration.	2,340				262
	(England); diachrome method.					
	India; fluorometric method.					41
	U. S. A.; fluorometric method					209
	India; dye titration:					201
	Leaves.					126
	Skins.					
Various parts	India; dye titration:					225
	Leaves.					
	Skins.					38
Tamarind	India; dye titration.					211
Various parts	India; dye titration:					225
	Flesh.					
	Skin.					
Tangarine (see Citrus fruit)	Dry; India; fluorometric method.					195
Taploca	Thiochrome method.					209
	Dried; dye titration.					265
Tea leaves	Root; China; dye titration.					41
Tea My	All red, fresh, picked; Minnesota; dye titration:					49
Tomato:	Grown in greenhouse.					
Red:	Avon Early; average and range, 5 samples; Massachusetts; dye titration.					
	One strain.					
	Another strain.					
	Baltimore; average and range, 6 samples; Massachusetts; dye titration.					173
	Massachusetts; average and range, 6 samples; Massachusetts; dye titration.					

* Values per 100 ml.
* Values on raw-weight basis.

* International Unit values were calculated from carotene analyses or included carotene analyses.
* Values on cooked or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ences (8)
Tomato—Can Red—Continued.	Beatty; average and range, 3 samples; Massachusetts; dye titration.	I. U.	I. U.	Meg.	Mg.	I. U.	I. U.	Meg.	Meg.		173
	Hard green.....				16-25 22-27 24						
	Half ripe.....				22-27 22-24 27						
	Fully ripe.....				20-27 20-30 26-31						49
	Belmont; Improved; average and range, 6 samples; Massachusetts; dye titration.				9.8						
	Best of All; average and range, 6 samples; Massachusetts; dye titration.				34						
	Bison; grown in greenhouse, freshly picked; Minnesota; dye titration.				19-20 20						173
	Minnesota; grown in greenhouse, freshly picked; Minnesota; dye titration.				20-34						
	Bonny Best; average and range, 6 samples; Massachusetts; dye titration.										
	Bonny Best; average and range, 8 strains; Massachusetts; dye titration.										49
	Bonny Best; freshly picked; Minnesota; dye titration; in field.				22.4						
	Grown in greenhouse.				16.9						
Tomato—Can Red—Continued.	Bonny Best; grown in greenhouse, freshly picked; Minnesota; dye titration.				11.0						49
	Bonny Best; ground into pulp for sampling; Virginia; dye titration.										
	Mango; Fresh; average and range.				21 20-22						
	Home-canned; processed 30 minutes cold in glass; average and range.				17.9 17-22						49
	Fresh; average and range.										
	Home-canned; processed 45 minutes cold in glass; average and range.				21 20-22						
	Fresh; average and range.										49
	Home-canned; processed 60 minutes cold in glass; average and range.				23 19-23						
	Fresh; average.				1.9						

Early State; average and range, 6 samples; Massachusetts; dye titration.	{ 33						173
Farthest North; freshly picked; Minnesota; dye titration.	{ 27-41						49
Globe; average and range, 3 strains; Massachusetts; dye titration.	{ 17.1						173
Globe; freshly picked; Minnesota; dye titration.	{ 29						49
Globe; freshly picked; Minnesota; dye titration.	{ 24-27						173
Globe; freshly picked; Minnesota; dye titration.	{ 22.2						173
Globe; freshly picked; Minnesota; dye titration.	{ 25						173
Greater Baltimore; average and range, 6 samples; Massachusetts; dye titration.	{ 21-30						173
Greater Baltimore; average and range, 6 samples; Massachusetts; dye titration.	{ 24-38						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 44						
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 41-50						
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 30-45						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 36-42						
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 30-36						
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 25-31						
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 31						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 22-37						49
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 23.1						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 16-33						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 15-23						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 15-26.2						49
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 13.0						49
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 30-47						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 35						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 18-32						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 15-22						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 15-20						173
Greenhouse; stored at room temperature; average and range, 4 samples; Massachusetts; dye titration.	{ 18-45						173

Grown in field. Marigolds; freshly picked; Minnesota; dye titration.	19.9						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	10.5						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	23.6						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	19.9						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	11.0						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	23.6						295
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	17.9-30.9						29
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	28						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	25.34						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	30-44						34
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	35.8						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	26						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	20-39						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	20-26						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	21.0						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	21-37						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	28						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	16-32						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	17-31						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	11.3						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	18						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	15-26						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	19.4						49
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	17.1						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	26						173
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	20-32						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	22						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	17-26						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	30-59						295
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	21						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	13-22.0						
Marigolds; grown in greenhouse, freshly picked; Minnesota; dye titration.	14.8-25.8						

Values on cooked- or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

129-36; grown in greenhouse, freshly picked; Minnesota; dye titration.						10.7				49
138-37; freshly picked; Minnesota; dye titration.						22.7				49
140-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						9.0				49
141-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						10.1				49
142-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						18.8				49
143-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						14.4				49
144-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						10.4				49
145-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						15.7				49
146-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						26.1				49
147-37; grown in greenhouse, freshly picked; Minnesota; dye titration.						28				216
Average and range; Argentina; dye titration.						20-35				209
Green; [England]; biochrome method.										202
Ripe; [England]; biochrome method.						24				11
Average and range; England; dye titration.						12-42				28
Pulp; England; biochrome method.						21.6				28
Pulp; dye titration.						28.8				28
Pulp; dye titration.										83
Pulp; dye titration.										229
Pulp; dye titration.										59
Pulp; dye titration.										195
Pulp; dye titration.										195
Pulp; dye titration.										211
Pulp; dye titration.										1
Pulp; dye titration.										204
Pulp; dye titration.										67
Pulp; dye titration.										86
Pulp; dye titration.										264

† Values on cooked, or processed weight basis.

‡ Values per 100 ml.

§ Values on raw-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (4)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Tomato—Con- tinued.	U. S. A.: dye titration: Raw, liquid blended Cooked, liquid strained Average and range; juice from raw tomato; U. S. A.: dye titration: Fresh	I. U.	I. U.	Meg.	Meg.	Mg.	Mg.	I. U.	I. U.	Meg.	Meg.	34
						± 10	± 10.2					
						{ ± 15-16	{ 21.4					
Canned.	Field in refrigerator 1 day at 40°-45° F.											168
	Field in refrigerator 3 days at 40°-45° F.											
	U. S. A.: dye titration: Juice, fresh; U. S. A.: dye titration											
	Ripe; U. S. A.: rat-growth method					± 16.7				62		
	Raw; U. S. A.: rat-growth method									37.3		
	Average and range, 13 samples; Washington, D. C.; marker dye titration.			78		± 18						
	Months before testing: New York; dye titration: Freshly opened					± 20.7						
	Opened and held 1 day in refrigerator					± 28.1						
	Opened and held 3 days in refrigerator					± 17.5						
	Opened and held 4 days in refrigerator					± 16.2						
Margarine.	Margarine, juice: home-canned in glass, stored 8-9 months before testing; New York; dye titration: Freshly opened					± 9.8						117
	Opened and held 1 day in refrigerator						± 8.9					
	Opened and held 2 days in refrigerator						± 7.5					
	Opened and held 4 days in refrigerator						± 6.6					
	Opened and held 8 days in refrigerator						± 5.7					
	Months before testing: New York; dye titration: Juice from freshly opened tin											
	Opened and held 1 day in refrigerator					± 17.8						
	Opened and held 4 days in refrigerator					± 16.5						
	Opened and held 8 days in refrigerator											
	Months before testing: New York; dye titration: In dark, New York; dye titration: Opened and held 1 day in refrigerator					± 8.7						
	Opened and held 4 days in refrigerator						± 7.6					
							± 6.7					

Tongue	Golden Nugget; average and range, 6 samples; Massachussets dye titration.	43 81-90 26 22-30 4 18.1 28.7 28.7 26.2	7 220	Nil 90-135 6.55 Nil 2 < 60 87	18 10-40 33 Trace 7.2 43.4 28.0 40.2-54.4	173
	Golden Queen; average and range, 6 samples; Massachussets dye titration.					
	Golden Queen; New York; dye titration.					
	Rutley; New York; dye titration.					
	Yellow Marigold; New York; dye titration.					
Tree tomato	Yellow Marigold; New York; dye titration.	173	182,183	209	13	211
	Yellow Plum; New York; dye titration.					
	Yellow Plum; U. S. A.; dye titration.					
	Beef; U. S. A.; rat-growth and microbiological methods, respectively.					
	Beef, cooked; thiochrome method.					
Tripe	Beef; bradycardia method.	6.55	Nil	209	13	211
	Beef; China; dye titration.					
	Yellow variety; India; dye titration.					
	Thiochrome method.					
	Stewed; bradycardia method.					
Trout	Muscle and skin, 81.0 percent moisture; Japan; lumiflavin method.	53.8	248	28	29	248
	Fresh-water; U. S. A.; rat-growth method.					
	Yellow fin; canned in cottonseed oil; Washington, D. C.; mackerel; rat-growth method.					
	2 samples; back muscle; 70.2 and 72.2 percent moisture, respectively; lumiflavin method.					
	Norway; rat-blossom; 6 percent fat.					
Tuna	Norway; rat-blossom; 6 percent fat.	1,570 430	{ 25.5 13.3 }	248	29	248
	Dorsal part, 6.2 percent fat.					
	Fresh; Germany: chromatographic and colorimetric method.					
	Back muscle; 76.6 percent moisture; Japan; lumiflavin method.					
	Thiochrome method.					
Turbot	Thiochrome method.	136.7	233	248	299	248
	Shogin; garden fresh; Ohio; dye titration.					
	Range; Boston; market samples; spectrophotometric method.					
	Short-shaped; China; dye titration.					
	Short-shaped; China; dye titration.					
Turnip	[England]; thiochrome method.	{ 11.49 28.1 }	34	209	41	209
	Cooked or canned; average and range; [England]; Cooked; [England]; bradycardia method.					
	White; Fuji; dye titration.					
	White; Fuji; dye titration.					
	India; dye titration.					
Turnip	Average and range, 4 samples; Texas; dye titration.	40	202	209	202	202
	White; Fuji; dye titration.					
	White; Fuji; dye titration.					
	India; dye titration.					
	Average and range, 4 samples; Texas; dye titration.					

1 International Unit values were calculated from carotene analyses or included carotene analyses.

2 Values on raw-weight basis.

3 Values calculated from authors' data.

4 Values on cooked- or processed-weight basis.

5 Values per 100 ml.

[illegible]^a Values on cooked- or processed-weight basis.

Values per 100 ml.

Values on raw-weight basis.

This figure may be significantly affected by method of sampling because of oxidative enzymes.

⁷ Values calculated from authors' data.

Vitamin values per 100 grams of edible portions of foods—Continued

[illegible]

Vitamin values per 100 grams of edible portions of foods--Continued

[illegible]

1.60 percent ash	770	127
Commercial ship's meat, calculated on 10 percent ash basis, 8. A., fermentation method.	800	
1.76 percent ash		
1.75 percent ash	830	
1.75 percent ash	870	
1.75 percent ash	870	
1.78 percent ash	790	
1.78 percent ash	820	
1.77 percent ash	820	
1.81 percent ash	710	
1.81 percent ash	800	
1.84 percent ash	800	
1.86 percent ash	670	
1.86 percent ash	670	
1.85 percent ash	780	
1.85 percent ash	780	
1.85 percent ash	660	
1.85 percent ash	660	
1.84 percent ash	690	
1.84 percent ash	690	
1.76 percent ash	650	
1.61 percent ash	630	
1.87 percent ash	660	
1.87 percent ash	660	
1.62 percent ash	660	
1.74 percent ash	670	
1.74 percent ash	670	
1.88 percent ash	650	
1.88 percent ash	680	
Average of 22 samples	680	
U. S. A., fermentation method:		
Bread, 35-percent moisture basis, from the flour.	101	127
Bread, 35-percent moisture, made from the flour.	113	
Bread, 35-percent moisture, made from the flour.	121	
Calculated on 10-percent moisture basis		
Calculated on 30-percent moisture, made from the flour.	670	127
Before making into bread		
After making into bread		
Bread	344	45
Stone ground, bradyardia method	450	117
Cleaned commercial samples, bradyardia method:	495	115
Range, 118 samples	1,000	12
Peak of distribution, 118 samples.	4,000	
Range for 98 percent of the 118 samples.	15,000	

¹ Values on cooked, or processed-weight basis.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)	Refer- ences (8)
Wheat—Continued. Germ—Con.	Average and range, 9 samples: Bradycardia method	I. U.	I. U.	Mcg.	Mg.	Mg.	I. U.	I. U.	Mcg.	208
	Thiochrome method			3,349 3,349 2,446 2,166 1,846 2,886						
	Average and range, 8 samples:			3,049 3,769 3,120 3,134 2,836						
	Bradycardia method			3,049 3,769 3,120 3,134 2,836						208
	Thiochrome method			4,509 4,200 4,000 3,769 3,179 2,436						
	Average and range, 6 samples:			4,509 4,200 4,000 3,769 3,179 2,436						
	Bradycardia method			4,509 4,200 4,000 3,769 3,179 2,436						208
	Thiochrome method			3,890 3,840 2,736 2,736 1,894 2,436 2,436 1,770 2,826 2,800						
	Average and range, 5 samples:			3,890 3,840 2,736 2,736 1,894 2,436 2,436 1,770 2,826 2,800						
	Bradycardia method			3,890 3,840 2,736 2,736 1,894 2,436 2,436 1,770 2,826 2,800						11
	Thiochrome method			3,890 3,840 2,736 2,736 1,894 2,436 2,436 1,770 2,826 2,800						
	Crude; average and range, 5 samples; bradycardia method.			3,890 3,840 2,736 2,736 1,894 2,436 2,436 1,770 2,826 2,800						
	Average and range, 4 samples; bradycardia method			2,890 2,890 4,275 4,500						112
	Average and range, 4 proprietary samples; brady- cardia method.			2,890 2,890 4,275 4,500						
	Range, 3 samples; U. S. A.; thiochrome method			3,000 2,430 3,836						11
	Average and range, 3 samples; thiochrome method			3,000 2,430 3,836						120
				3,726						207

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value		Thiamin (vitamin B ₁)		Ascorbic acid (vitamin C)		Vitamin D		Riboflavin		Refer- ences (8)
		(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	
Wheat—Continued. Whole grain 113 —Continued	Kawale, C. I. No. 8,180 (8,187); obtained from Kansas; fermentation method.		I. U.	Mg.	Mg.			I. U.		Mg.	Mg.	235
	Eberhart C. I. No. 1,442; obtained from Kansas; fermentation method.		I. U.	436								235
	McIntosh; winter; obtained from Minnesota; fermentation method.			450								235
	Produce, Maryland; red-growth method.											235
	Minturki; winter; obtained from Minnesota; fermentation method.											235
	Normed C. I. No. 10,094; obtained from Kansas; fermentation method.			600								235
	Nitrary; obtained from Michigan; fermentation method.			520								235
	Ore X; Tenmar C. I. No. 11,672; obtained from Kansas; fermentation method.			600								235
	Y. Kansas; obtained from Michigan; fermentation method.			510								235
	Red Marvel; spring sowing; England; thiochrome method.			594								30
	Redman; Lincolnshire; 1939 crop; England; thiochrome method.			351								30
	X chromosome; spring sowing; England; thiochrome method.			540								30
	Rivet; thiochrome method.			185								30
	Squacabeads Master; autumn sowing; England; thiochrome method.			420								30
	Squacabeads Master; autumn sowing; England; thiochrome method.			399								30
	Normal manuring.			429								30
	Tenmar C. I. No. 6,996; obtained from Kansas; fermentation method.			375								235
	Tenmar C. I. No. 6,996; obtained from Minnesota; fermentation method.			570								235
	Trumbull; obtained from Michigan; fermentation method.			730								235
	Turkey C. I. No. 1,658; obtained from Kansas; fermentation method.			470								235
	Waco; autumn sowing; England; thiochrome method.			450								235
	Normal manuring.			375								30
	Intensively manured.			429								30

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)	Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ences (8)
		I. U.	I. U.	Mg.	Mg.	Mg.	I. U.	I. U.	Mg.	Mg.	
Wheat—Continued. Whole grain II a— Continued.	Hard spring, U. S. A.; rat-growth method.			Mg. 625							28
	Montana Spring; obtained from Illinois; fermentation method.			580							235
	Northern Spring; grade 1 dark; thiochrome method.			180							30
	Spring, 13.5 percent protein; obtained from Illinois;			690							235
	White; obtained from Illinois; fermentation method.			330							30
	Triticum dicoccum; England; thiochrome method.			444							30
	T. durum; France; thiochrome method.			440							30
	T. durum; England; thiochrome method.			240							30
	T. monocoecum; Russia; thiochrome method.			351							30
	T. polonicum; Egyptian; thiochrome method.			540							30
	T. polonicum; Russia; thiochrome method.			396							30
	T. spelta; England; thiochrome method.			278							30
	T. spelta; France; thiochrome method.			354							30
	T. vulgare; England; thiochrome method.			384							30
	White; (native white); Holland; thiochrome method.			380							283
	White; No. 1 Hard White; 13.5 percent protein; obtained from Illinois; fermentation method.			610							235
	Soft White; Pacific; thiochrome method.			441							30
	White; type; 189 crop; England; thiochrome method.			351							30
	White; 14.4 percent protein; obtained from Illinois; fermentation method.			610							235
	White; obtained from Illinois; fermentation method.			610							235
	Dark Hard Red Winter; thiochrome method.			402							30
	Dark Hard Red Winter; 14.4 percent protein; obtained from Illinois; fermentation method.			670							235
	No. 1 Hard Winter; 14.5 percent protein; obtained from Illinois; fermentation method.			670							235
	Minnesota Winter; 13.5 percent protein; obtained from Illinois; fermentation method.			550							235
	Minnesota Winter; 13.5 percent protein; obtained from Illinois; fermentation method.			590							235
	Minnesota Winter; 13.5 percent protein; obtained from Illinois; fermentation method.			600							235
	Soft Winter; U. S. A.; rat-growth method.			354							28
	Soft Winter; U. S. A.; rat-growth method.			640							235
	Australia; bradyoxidia method.			750							115

do	540	11
Australia; thiochrome method.	630	15
South Australia; thiochrome method	420	30
North-Southwest Australia; thiochrome method	612	268
North-Southwest Australia; thiochrome method	450	30
Bulgaria; thiochrome method	384	30
California; thiochrome method	320	268
1935 crop; Danube region; thiochrome method.	270	30
English grade 2; thiochrome method	312	30
English grade 3; thiochrome method	365	30
Station; England; bradycaemia method; Experiment 2	300	30
No manure on soil	300	30
Soil treated with complex mineral mixture	390	30
Above treatment plus 412 pounds ammonium sulfate per acre	360	30
Soil treated with 412 pounds ammonium sulfate per acre	390	30
1939 crop; Egypt; thiochrome method	462	30
France; thiochrome method	270	2
do	390	2
Germany		
India; thiochrome method		
Do; dry seed:		
After 24-hour germination		1
After 48-hour germination		1
After 96-hour germination		1
After 120-hour germination		1
India; thiochrome method	225	110
Ireland (Kilkeny District); thiochrome method	354	30
Morocco; thiochrome method	384	30
Morocco; thiochrome method	453	30
Pakistan (Punjab of Siam); thiochrome method	480	268
Rumania; thiochrome method	726	30
do	726	30
Russia; thiochrome method	432	30
Sweden; fluorometric method	570	67
U. S. A.; fermentation method	234	234
U. S. A.; thiochrome method	625	30
Walla Walla; U. S. A.; thiochrome method	360	30
One sample; bradycaemia method; Assayed in 1932	168-299	13

13 W heats under this category are grouped by class or type and place of production.

Vitamin values per 100 grams of edible portions of foods—Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) I. U.		Thiamin (vitamin B ₁) (4a) M μ		Ascorbic acid (vitamin C) (5a) M μ		Vitamin D (6a) I. U.		Riboflavin (7b) M μ	Refer- ences (8)
Yeast—Continued. Brewer's—Con.	Missouri: Rat-growth methods, Thiochrome and rat-growth methods, respectively.	I. U.	I. U.	M μ	M μ	M μ	M μ	I. U.	I. U.	M μ	M μ .
				15,000	15,000					2,750	2,750
				15,500	15,500					2,800	2,800
	Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,500						2,800	
	Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,500						2,800	
	Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				20,100						4,520	
	New Jersey: Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,100						4,530	
(10)	New York: Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,150						4,110	
	Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,500						2,750	
	Washington: Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,500						2,750	
	Wisconsin: Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				15,500						2,750	
	Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,750	
				20,100						2,750	
	Rat-growth methods, Thiochrome and microbiological methods, respectively.			15,000						2,000	
				15,000						2,000	

	(*)	(*)	(*)	(*)
Dried, nondistilled, 3.5 percent moisture; rat-growth method.	13,600	3,500		
Missouri.....	12,000	4,000		
do.....	12,000	2,800		
Wisconsin.....	18,600	2,500		
Dried, nondistilled, 3.5 percent moisture; microbiological method:				
do.....		3,500		
do.....		1,800		
Dried; England; thiochrome method	10,500	1,600		
Dried; England; bradyardia method.		1,800		
Dried; India; rat-growth method		1,500		
Dried; India; fluorometric method		1,500		
Dried; Japan; fluorometric method		1,500		
Dried; Japan; rat-growth method		1,500		
Dried; Sweden; fluorometric method		1,500		
Dried; average and range of values on same method		1,500		
Dried; U. S. A.; thiochrome method		1,500		
do.....		1,500		
do.....		1,500		
Dried; U. S. A.; colorimetric method		1,500		
Dried; 1 sample; U. S. A.		1,500		
Microbiological method		1,500		
U. S. A. microbiological method:		1,500		
Distilled and		1,500		
Dried, recovered from alcohol production, 3.0 percent moisture; Pennsylvania:		1,500		
First sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Second sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Third sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Fourth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Fifth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Sixth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Seventh sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Eighth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Ninth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Tenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Eleventh sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Twelfth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Thirteenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Fourteenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Fifteenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Sixteenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Seventeenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Eighteenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Nineteenth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Twentieth sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Twenty-first sample.....		1,500		
Rat-growth methods		1,500		
Thiochrome and microbiological methods, Pennsylvania:		1,500		
Twenty-second sample.....		1,500		
Rat-growth methods		1,500		

¹⁶ Data supplied by K. L. Cartwright, Apheuser-Busch Laboratories, St. Louis, respectively.

Vitamin values per 100 grams of edible portions of foods--Continued

Item (1)	Description of sample (2)	Vitamin A value (3a) (3b)		Thiamin (vitamin B ₁) (4a) (4b)		Ascorbic acid (vitamin C) (5a) (5b)		Vitamin D (6a) (6b)		Riboflavin (7a) (7b)		Refer- ences (8)
		I. U.	Mfg.	I. U.	Mfg.	Mfg.	I. U.	I. U.	Mfg.	Mfg.		
Yeast--Continued. Brewer's--Cont.	Primary, nondiluted, 4-6 percent moisture; Missouri.		120							Mfg.		(1)
	Primary, debittered, 3-5 percent moisture; Missouri.		35-165							35-45		(1)
	Primary, for pharmaceutical uses, 3-5 percent moisture; Missouri.		180							40-50		(1)
	Primary, for fortification and flavoring of foods, 3-5 percent moisture; Missouri.		150-180							70-80		(1)
	Primary, high potency, 3-5 percent moisture; Missouri.		600-690							60-75		(1)
	Primary; range, 8 samples; U. S. A.; light absorption method.									70-80		(1)
	Residual, dried; 3 samples; U. S. A.:									3,420- 7,820		226
	Microbiological method, 2 laboratories.											
	Fluorophotometric method, 2 laboratories.									4,770 4,750 4,710		(1)
	Rat-growth method, 1 laboratory.									5,160		
Youngherry	Sample 1:											(1)
	Microbiological method, 2 laboratories.									3,640		
	Fluorophotometric method, 2 laboratories.									3,340 3,540 3,440		(1)
	Rat-growth method, 1 laboratory.									3,560		
	Sample 3:									3,370		
	Microbiological method, 2 laboratories.									3,210 3,540 3,280		226
	Fluorophotometric method, 2 laboratories.									3,230- 6,020		
	Rat-growth method, 1 laboratory.											
	Residual; range, 6 samples; U. S. A.; light absorption method.											
	Commercial frozen; Boston market sample; spectrographic method.	1,460										82

¹ International Unit values were calculated from carotene analyses or included carotene analyses.

² Data supplied by K. L. Cartwright. Riboflavin was determined by 2 of the following 3 methods: Rat-growth, thiochrome, and ³ Data supplied by K. L. Cartwright. Anheuser-Busch Laboratories.

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